

of the shell; opaque-white within; columella plait distinct, inner lip white thinly and narrowly spread over the columella, and obliterating the umbilical fissure.

*Dimensions*:—Length 16, breadth 7·5, length of aperture 9·5 millimetres.

*Locality*:—Lake Wendouree, Ballarat, Victoria.

This species is closely related to *Physa Aliciæ*, from which it differs in its narrower and less oblique form, more attenuated spire, and in the fewness of the longitudinal keels. *P. Kershawi*, T.-Woods, though belonging to the same natural group, is like *P. mæsta*, Adams, of New Zealand, and therefore makes an approach to *P. Cumingi*.

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#### DESCRIPTIONS OF AUSTRALIAN MICRO-LEPIDOPTERA.

BY E. MEYRICK, B.A.

##### V. TORTRICINA.

In the present paper (together with the next instalment shortly to follow) I have endeavoured to create a substantial basis for the acquisition of knowledge of the *Tortricina* of Australia and New Zealand. I have identified, classified, and redescribed the species of the group indicated by Walker in the British Museum Catalogue of Lepidoptera, as well as the few others named by other writers; and have added descriptions of all the new species which I possess in my own collection. In the present instalment 103 species are described, of which 57 are new. The worthless character of Walker's descriptions is sufficiently well known; in this group, owing to the great similarity of marking and obscure colouring of the species, the great majority of his descriptions are in themselves absolutely unidentifiable, in the absence of trustworthy generic indication. The forty species of the *Tortricidæ* which he possessed from Australia and New Zealand are described

by him under seventy-eight different names, one species being burdened with as many as eleven synonyms, and in no single instance has a species been correctly referred to its proper genus. I have recently examined the whole of his Australian types in the British Museum collection, and have identified almost all as species of which I possess specimens; of four or five I do not possess specimens, and in these cases I have not been able to make a sufficiently thorough investigation to make the generic identification absolutely certain, but I trust I have not made any gross errors in that respect. With regard to the retaining of Walker's names, it appears to me indisputable that it would have been perfectly justifiable to reject all names followed by descriptions which did not of themselves sufficiently indicate the species referred to. If the description is not identifiable, it is no description; the existence of the type is not to the point. If an author of the present day were to publish a list of names of new species, and observe that he had omitted to add descriptions, as the types were always on view in his collection, I presume his names would not be adopted; yet in regard to most species, what Walker has done amounts to no more. Notwithstanding, in deference to general usage, I have retained his names on the strength of the types alone; but at the same time I assert distinctly that I do not consider myself bound to do so in any instance. The rule which I have adopted (suggested to me by Prof. Fernald) has been to retain all names followed by descriptions which there appears sufficient reason to believe were really intended to represent the specimen standing in the collection as type of the species, however inadequately they may do so. If, as is not unfrequently the case, the type has been lost, then I have rejected the name entirely, unless the description clearly indicated a particular species. When the form of the name errs grossly against the elementary rules of the Latin language, I have corrected it to a more seemly shape. Prof. Zeller urges me also to change the pointless and nonsensical names which often occur

for more significant titles, but though sometimes sorely tempted, I have not ventured to carry out a principle so liable to abuse.

Of other authors, Lewin, Newman, and Zeller have described one or two species each, which I have determined as far as practicable. Felder in the "Reise der Novara" has figured several species, principally from New Zealand; the figures are very poor and frequently quite unidentifiable, but all those which I have been able to determine are synonyms of species previously described by Walker. Butler has also described a few species, of which I have included those of which I have seen the types in the British Museum collection; they seem to have been invariably referred to wrong genera, after the example set by Walker, but are mostly distinct species.

The classification of the *Tortricina* has usually been regarded by European writers as a task of unusual difficulty, their knowledge being confined to the European fauna. It is true that, until the publication of the systems of Lederer and Heinemann, all schemes proposed were scientifically quite valueless. I am disposed to think, however, that the difficulty of the group has been somewhat exaggerated. The general character of the markings, colouring, and form of wing is so uniform throughout the group, and restricted within such narrow limits of variation, that the same, or an extremely similar, superficial facies often recurs in distinct genera; which has fostered an erroneous belief that the structural points of generic distinction were misleading and insufficient. Moreover the structure of the head and palpi, which in the *Tineina* affords so ready a means of classification, in the *Tortricina* presents usually but few and unimportant differences. The best generic characters are afforded by the neuration, which I have always found a very trustworthy guide; the basal pectination of the lower median vein of the hindwings, the structure of the antennæ, and the presence of a costal fold in the male, are also points on which much stress may be safely laid. In the case of the Australasian species I have found no

particular difficulty in applying these means, and they have enabled me to separate the species into genera which appear to be undoubtedly natural. I should add that in the *Tortricina* the neuration can usually be clearly traced by inspection of the lower surface of the wings without denuding them of scales; a circumstance which has enabled me to fix with certainty the position of those species of which I possess only single specimens which could not therefore be spared for dissection. For the just classification of the present family (*Tortricidæ*) I have been compelled to form seventeen new genera, owing to the very strong specialisation of the fauna, many of these forms being very remote from anything previously known.

The *Tortricina* appear to me clearly separable into three well-defined families, by the following characters, viz :

1. *Tortricidæ*.—Lower median vein of hindwings not pectinated at base; vein 2 of forewings rising from before posterior third of cell.

2. *Grapholithidæ*.—Lower median vein of hindwings pectinated at base; vein 2 of forewings rising from before posterior third of cell.

3. *Conchylidæ*.—Lower median vein of hindwings not pectinated at base; vein 2 of forewings rising from posterior fourth of cell.

These families constitute assemblages of an undoubtedly natural character, and are capable of accurate limitation as above; but even were one or two exceptions to be discovered, I should not consider that the fact would invalidate the title of these groups to be regarded as families. In my view, these three families are independent branches of a common stock, and might be represented by three lines, diverging somewhat, from nearly the same point; and being distinctly separable at their origin, they need not be confused, even though one should, through analogous variation, perhaps occasionally develop the peculiar characteristic of the others. The true position will always be discernible by a

consideration of the sum of the characters, rather than a blind dependence on one alone. In the present paper the *Tortricidæ* alone are included; the *Grapholithidæ* and *Conchylidæ*, which even together are much less numerous, will form the subject of the next instalment.

The *Tortricidæ* are divisible by means of the neuration into well-defined and natural groups which might, if desirable, be adopted as subfamilies, viz. :

- a. *Mictoneura*—Veins 8 and 9 of forewings rising on a stalk from 7 (genus 1).
- b. *Acropolitis* group—Veins 3 and 4 of hindwings separate at origin (genera 2-10).
- c. *Dichelia* group—Veins 3 and 4 of hindwings from a point or stalked, 7 and 8 of forewings stalked (genera 11-16).
- d. *Tortrix* group—Veins 3 and 4 of hindwings from a point, 7 and 8 of forewings separate (genera 17-21).

There are also other lower-organised groups, but they are apparently not represented in Australia, and I will not therefore attempt to define them. Assuming that the origin of the family is to be found in the extreme forms of the *Gelechidæ* (*Dasystema* and *Chimabacche*), a direct progression may be traced from such forms as *Cheimatophila* and *Evapate* through *Sciaphila* to *Tortrix* and *Cacœcia*, with a continually increasing breadth of wing; the transition from these to *Dichelia* seems at present to be incomplete, there being no distinct indication of the steps through which veins 7 and 8 of the forewings became stalked; *Capua* is a modification of *Dichelia*, and from *Capua* are formed *Acropolitis* and *Pyrgotis* by the separation of veins 3 and 4 of the hindwings; and from these latter again are developed the more extreme forms of this type, with veins 3, 4, 5 all equidistant and parallel, and the other details of structure often considerably modified. *Mictoneura* stands at present so remote from its allies, that it is

hardly possible to conjecture whence it may have originated, but perhaps from the neighbourhood of *Capua*.

The *Tortricidæ* are represented in this region at present by 103 species, two-thirds of the whole *Tortricina*, since I have altogether only about 50 native species of the other two families. In Europe, on the other hand, the *Tortricidæ* number about 145 species out of 680, little more than one-fifth of the whole. Of the 103 species hereafter described 24 are indigenous to New Zealand, and 79 to Australia, none being common to both, nor are any at present known to occur elsewhere. No European species of the family has yet been introduced, though the food-plants of many common species have been imported; amongst the *Grapholithidæ*, however, there are several introduced species.

On a general analysis of the fauna, the most striking feature appears to be the development of group *b.*, of which *Acropolitis* may be taken as the type, since this group, distinguished by a clearly-marked peculiarity of structure, is unknown elsewhere, and appears to be wholly confined to the Australian region, where it is represented at present by nine genera and nineteen species; the large proportion of distinct genera being very noticeable. Only one of these genera extends into New Zealand, where it reaches some development, being represented by at least four species, much more intimately allied to one another than to the single Australian species. Arranging the genera of this group in a natural progression by the amount of peculiarity, we find at the one end of the series forms closely approximating to *Capua*, and at the other peculiar and abnormal types, differing widely from any other group. There can be little doubt under the circumstances that the whole of this group has been developed in Australia from some original form closely resembling *Capua*, and it will probably be found to be wholly confined to this region, though it is of course possible that one or two forms may have spread outwards to other lands. A single species of this group reaching New Zealand will be sufficient to account for the

ancestry of the forms at present known thence. From the large amount of generic diversification in the group, we may infer with some probability a correspondingly long period of isolation. We shall see hereafter that the *Conchylidæ* afford a quite similar instance of a peculiar group, from the characteristics of which precisely the same inferences may be drawn. In connection with the development of this group derivable from *Capua*, the predominance of *Capua* itself and its close ally *Dichelia* in the Australian region is of considerable interest. The first of these genera is represented by twelve, and the second by thirteen species, both genera extending to New Zealand; whilst in Europe and America they are very sparsely represented; in fact, of *Capua* only three other species are known. Besides these there are four other nearly allied endemic genera, including seven species; so that in fact three-fourths of the peculiar Australian genera of the family are traceable to this source; and as out of the twenty-one genera described seventeen are endemic, this disproportion is very marked.

Of the rest, the cosmopolitan genera *Tortrix* and *Cacæcia* are represented by numerous forms of no marked peculiarity; these genera are doubtless of great antiquity. *Cacæcia* is especially predominant in New Zealand, where all the species appear to belong to a special group with more elongate palpi, suggesting a limited origin. There are also three other endemic genera of this group, all moderately nearly allied to *Tortrix*, and two of them extending to New Zealand. Finally there is the very singular genus *Mictoneura*, wholly remote from all others; so far as can be judged at present, it seems probable that we have here a last surviving relic of an extinct group, possibly indicating the transition from the *Tortricina* to the *Pyralidina*.

All the characteristics of the fauna will therefore agree in indicating great isolation, and from the limitation of forms may be inferred the remoteness of the period at which the isolation began. New Zealand is distinguished by a much greater limi-

tation of forms, but does not show any peculiar genera, or any differing from those native to Australia, though all the species are peculiar. To sum up briefly the characteristics of the representation of the *Tortricidæ* in the Australian region, it will be seen that there are (1) two genera occurring throughout the world plentifully, (2) two genera occurring plentifully here, but very scantily elsewhere, (3) three endemic genera derivable from the first two, (4) thirteen endemic genera derivable from the second two, (5) a single abnormal endemic genus representing an extinct group.

Of genera remarkable by their absence may be noticed especially *Teras* Hb., and *Sciaphila*, Tr.; these are of very general distribution, appearing to extend over most of the rest of the globe, and contain numerous species, but are neither themselves present in Australia, nor represented by allies. It seems almost certain that these are really absent, as they are freely developed and conspicuous wherever else they occur.

#### TORTRICINÆ.

*Head rather rough; ocelli present; tongue short (rarely obsolete). Antennæ short. Maxillary palpi absent. Labial palpi rather stout, more or less porrected. Wings usually broad. Forewings with twelve (rarely eleven) veins, vein one furcate at base (rarely one fork obsolete). Hindwings with eight or sometimes seven veins.*

#### FAM. I. TORTRICIDÆ.

Lower median vein of hindwings without basal pectination; vein two of forewings rising before posterior third of lower margin of cell.

The indigenous genera of this family may be tabulated as follows:

- I. Veins 8 and 9 of forewings stalked . . . 1. *Mictoneura*.
- II. Veins 8 and 9 of forewings separate



- A. Veins 3 and 4 of hindwings remote at origin.
1. Veins 3, 4, 5 of hindwings remote and equidistant at origin.
    - a. Veins 7 and 8 of forewings separate 2. *Prosclena*.
    - b. Veins 7 and 8 of forewings stalked . . 4. *Isochorista*.
  2. Vein 5 closely approximated at base to 4.
    - a. Forewings with 11 separate veins . . 5. *Atelodora*.
    - b. Forewings with 12 veins.
      - i. Veins 7 and 8 of forewings separate 3. *Palæotoma*.
      - ii. Veins 7 and 8 of forewings stalked.
        - \*. Thorax smooth.
          - †. Hindwings narrower than forewings . . . . 6. *Aristocosma*.
          - ††. Hindwings broader than forewings . . . . 7. *Adoxophyës*.
        - \*\* . Thorax strongly crested.
          - †. Veins 6 and 7 of hindwings stalked . . . . 10. *Pyrgotis*.
          - ††. Veins 6 and 7 of hindwings separate.
            - ‡. Palpi arched, appressed to face . . . . 8. *Thrinophora*.
            - ‡‡. Palpi porrected . . . . 9. *Acropolis*.
- B. Veins 3 and 4 of hindwings from a point or short-stalked.
1. Veins 7 and 8 of forewings stalked.
    - a. Costa of male with basal fold.
      - i. Costal fold strong . . . . 11. *Capua*.
      - ii. Costal fold very small and imperfect
        - \* Palpi arched upwards; thorax crested . . . . 13. *Asthenoptycha*

- \*\* Palpi porrected ; thorax smooth 12. *Acroceuthes*.
- b.* Costa of male without fold.
- i.* Palpi arched upwards ; thorax  
crested .. .. .14. *Anatropia*.
- ii.* Palpi porrected ; thorax smooth.
- \* Anal valves of male very large,  
tufted .. .. .15. *Anisogona*.
- \*\* Anal valves of male moderate 16. *Dichelia*.
2. Veins 7 and 8 of forewings separate. -
- a.* Hindwings with a costal tuft of  
raised scales .. .. .17. *Cryptoptila*.
- b.* Hindwings without tuft.
- i.* Costa of male more or less strongly  
folded .. .. .18. *Cacœcia*.
- ii.* Costa of male without fold.
- \*. Veins 6 and 7 of hindwings  
separate :
- †. Antennæ of male filiform,  
finely ciliated .. .19. *Tortrix*.
- ††. Antennæ of male strongly  
dentate, with tufts of cilia ..21. *Arotrophora*.
- \*\* . Veins 6 and 7 of hindwings  
stalked .. .. .20. *Dipterina*.

1. MICTONEURA, *n. g.*

Thorax with strong erect crest. Antennæ in male thickened, joints crowded, serrate, strongly ciliated ; basal joint above with a ridge-like pointed erect tooth of scales. Palpi rather long, porrected, second joint with elongate-triangular appressed scaling, terminal joint long, cylindrical, exposed. Legs moderate, inner spurs very much longer than outer. Forewings subtriangular, dilated, costa in male simple, arched at base, thence gently arched, apex obtuse, hindmargin rather oblique, rounded. Hindwings as broad as forewings, trapezoidal, hindmargin strongly sinuate

beneath apex. Forewings with veins 8 and 9 stalked, rising out of 7 near its base, vein 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 separate.

This remarkable genus is remote from all other known *Tortricina* in the type of neuration of the forewings, in which particular it resembles the typical *Pyralidina*. I think, however, that it is without doubt properly referred to its present position at the head of the *Tortricidæ*, with which family it agrees in all other structural points, though peculiar in its superficial features. It is not nearly allied to any other genus, but in general character approaches perhaps nearest to the group of which *Dichelia* is the type.

1. *Mict. flexanimana*, n. sp.

♂ ♀. 5"-6". Head and palpi whitish, irregularly mixed with fuscous. Antennæ fuscous. Thorax whitish, finely irrorated with greyish-ochreous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous, posterior tarsi infuscated at base of joints. Forewings whitish, clearer white along costa, especially at base, rest of wing crossed by regular fine straight parallel transverse fuscous strigulæ, all the veins whitish marked with numerous blackish-fuscous spots; a small blackish-fuscous rounded-triangular spot on costa in middle, darkest on edges; before it are four small equidistant black spots on costa, and beyond it on the costa and hindmargin are more indistinct blackish-fuscous spots between the veins; the costa is also minutely strigulated with fuscous throughout; the hindmargin, especially towards anal angle, and the disc and inner margin, especially before middle, are faintly and irregularly clouded with pale fuscous-grey: cilia ochreous-whitish, barred with grey opposite the veins. Hindwings grey-whitish, with fine parallel transverse grey strigulæ; cilia grey.

The general aspect of this species is very peculiar; the extreme regularity of the transverse strigulæ between the veins produces an appearance of geometrical reticulation similar to that of the webs of some spiders.

Five specimens taken at rest on fences in Sydney, from September to December.

## 2. PROSELENA, *n. g.*

Thorax smooth. Antennæ in male thickened, thin and shortly ciliated. Palpi short, porrected, second joint roughly scaled above, terminal joint almost concealed. Forewings elongate, narrow, costa in male simple, gently arched, hindmargin very oblique, rounded. Hindwings elongate, broader than forewings. Forewings with veins 7 and 8 separate. Hindwings with veins 3 and 4 remote at origin and parallel, 5 equidistant from 4 and parallel, 6 and 7 long-stalked.

This genus belongs to the group in which veins 3 and 4 of the hindwings do not rise from the same point. In this group it is distinguished from all except *Isochorista* by having veins 4 and 5 of the hindwings not only widely remote at origin but parallel throughout; from *Isochorista* it differs by the separation of veins 7 and 8 of the forewings, which in *Isochorista* rise from a common stalk.

### 1. *Pros. annosana, n. sp.*

♂ ♀.  $4\frac{1}{4}$ "-5". Head and palpi white. Antennæ greyish-ochreous. Thorax white, margins spotted with pale ochreous. Abdomen whitish-ochreous. Legs ochreous-white, anterior tarsi suffused with fuscous at base of joints. Forewings white, irregularly strewn with fine fuscous-grey scales, forming indistinct strigulæ on costa; base indistinctly spotted with ochreous; four nearly straight transverse slender ochreous fasciæ, nearly perpendicular to costa; first at one-fourth, indistinct, clearest in disc, slightly bent below costa; second in middle, slightly broader

and more conspicuous than the others, somewhat bent below costa, mixed with black on costa and on lower half of its anterior edge; third at three-fourths, fainter, often interrupted; fourth subapical, slender, often mixed with black; cilia white, with a slender blackish central dividing-line. Hindwings and cilia white.

This is a peculiarly delicate and fragile-looking little species, and has more the facies of some of the *Oecophoridae* than of a veritable *Tortrix*, and its markings are equally abnormal.

Sufficiently common where it occurs, but rather local; taken near Parramatta, New South Wales, flying gently towards sunset amongst the *Eucalyptus* bushes in dry grassy places, in September and October.

### 3. PALÆOTOMA, *n. g.*

Thorax smooth. Antennæ in male thickened, ciliated. Palpi long, porrected, second joint somewhat arched, with rather appressed scales, terminal joint very long, naked, horizontal. Forewings elongate, narrow, surface with raised scales; costa in male simple, nearly straight, apex rather acute, hindmargin very oblique, rounded. Hindwings elongate, broader than forewings. Forewings with veins 7 and 8 separate, closely approximated towards their origin. Hindwings with veins 3 and 4 remote at origin and parallel, 5 approximated to 4 at base, 6 and 7 stalked.

Larva sixteen-legged, producing true galls, inside which it feeds.

Distinguished from the other genera with veins 3 and 4 of the hindwings remote at origin and 12 veins in the forewings (except *Proselena*) by the separation of veins 7 and 8 of the forewings; from *Proselena* it differs by the elongate palpi, and the approximation of veins 4 and 5 of hindwings at origin. In general facies it somewhat resembles a *Sciaphila*. It is remarkable as affording an instance of a true gall-producing Tortricideous larva; and it seems not improbable that some of the allied genera may be found to have a similar larval habit.

1. *Pal. styphelana*, n. sp.

♂ ♀. 6"-8". Head, palpi, antennæ, and thorax dark ashy-grey. Abdomen dark ochreous-grey. Anterior and middle legs dark fuscous-grey; posterior legs whitish, tarsi suffused with fuscous-grey at base of joints. Forewings ashy-grey, surface somewhat roughened, thinly and irregularly sprinkled with black seales, which tend to form short longitudinal strigulæ; costa with very short oblique blackish strigulæ; a strong irregular black streak from base to disc above anal angle, posteriorly attenuated, sometimes partially obsolete; a very slender blackish line from three-quarters of costa very obliquely outwards nearly to hindmargin, thence bent abruptly round to anal angle; beyond this is sometimes another similar line; a black spot on disc beyond middle, above the extremity of the basal streak: cilia pale ashy-grey, with a blackish line above base, and three other slender dark-grey lines. Hindwings fuscous-grey, darker on apex and hindmargin; cilia fuscous-grey.

The longitudinal black streak from base is generally a good characteristic of this insect.

The imago is sluggish in habit, and not commonly met with, but I have found two or three specimens at rest near Sydney, in September and January. I bred a number of specimens from the larvæ, which were not uncommon in some places in the bush near Sydney, and these all emerged in September, so that January specimens probably belong to a second generation.

Larva stout, cylindrical, not tapering; glossy whitish; head and second segment almost as broad as body, blackish. It feeds in galls on *Eucalyptus* sp.; the galls are formed on the extremity of young shoots by metamorphosis of the terminal tuft of unexpanded leaves; they are from one to two inches long, and about half an inch broad, irregular-shaped, resembling an inflated tuft of leaves but solid; the larvæ eat hollow galleries through them, ejecting the excrement through minute holes; there are generally

one or two, rarely more, larvæ in each gall. Pupation takes place inside the gall, without a cocoon. The larvæ were found in July about half-grown, and the imagos appeared in September.

With regard to this and other Eucalyptus-feeding species, I may say that it is generally very difficult to identify the species of *Eucalyptus* on which they are found; the general similarity of these plants is very great, there are usually several kinds growing near together, and the larvæ are almost invariably found on young saplings which have not yet developed their specific characteristics.

#### 4. ISOCHORISTA, *n. g.*

Thorax smooth. Antennæ in male somewhat thickened, shortly ciliated. Palpi moderate, porrected, second joint broadly scaled, rather truncate, terminal joint very short, distinct. Forewings elongate-triangular, rather narrow, costa gently arched, in male with fold towards base, hindmargin very obliquely rounded. Hindwings elongate-trapezoidal, as broad as forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 remote at origin and parallel, 5 equidistant from 4 and parallel, 6 and 7 stalked.

Differs from all except *Proselena* in having veins 3, 4, 5 of the hindwings all equidistant and parallel; from *Proselena* it is at once known by having veins 7 and 8 of the forewings stalked, and by the costal fold of the male. In general superficially the imagos much resemble some of the smaller species of *Capua* and *Dichelia*.

There are two species, of which *I. panaeolana* may be known from *I. ranulana* by the presence of transverse leaden-metallic markings.

##### 1. *Isoch. ranulana*, *n. sp.*

♂ ♀. 4"-5". Head, palpi, and thorax dull ochreous, thinly mixed with fuscous. Antennæ whitish-ochreous, sharply annul-

ated with dark fuscous. Abdomen greyish-ochreous, anal tuft of male ochreous-whitish. Legs ochreous-whitish, anterior and middle tibiæ with central and subapical fuscous bands, tarsi dark fuscous at base of joints. Forewings elongate, narrow, pale ochreous; costa strongly strigulated with black; basal patch represented by one or two sharply bent transverse blackish lines at one-fourth, sometimes filled up with several indistinct parallel fuscous lines; central fascia straight, moderately and evenly broad, dark fuscous-grey edged with black, running from middle of costa to anal angle, sometimes slightly dilated on lower half; a dark fuscous triangular blotch on costa before apex, connected with hindmargin above anal angle by a narrow fuscous cloudy streak, thence produced upwards along hindmargin; a short black marginal line round apex; cilia pale ochreous, clouded with greyish, and cut on middle of hindmargin by a longitudinal blackish mark. Hindwings and cilia grey.

This species is nearly allied to the succeeding, but is smaller and narrower-winged, and without the transverse leaden-metallic markings; the basal patch and central fascia are also more distinctly marked.

Rather common, though liable to be overlooked from its small size and inconspicuous colouring; it flies towards sunset in dry grassy places amongst *Eucalyptus* bushes, generally keeping near the ground. It is probably very generally distributed in New South Wales, where I have taken it at Sydney, Parramatta, Bulli, Mittagong, and Murrurundi; it occurs most commonly from August to October, but also in December and March.

## 2. *Isoch. panaeolana*, n. sp.

$4\frac{3}{4}$ "- $5\frac{1}{2}$ ". ♂. Head, palpi, and thorax dark fuscous mixed with ochreous. Antennæ whitish-ochreous, strongly annulated with dark fuscous. Abdomen dark fuscous, anal tuft ochreous-white beneath. Legs dark fuscous; posterior pair whitish, base of tarsal joints dark fuscous on sides. Forewings elongate,



posteriorly dilated, rather pale ochreous, irregularly mixed with numerous black scales, which tend to form irregular margins to the metallic markings, between which they also form black spots on costa; they also generally accumulate in an irregular black patch on anal angle; seven oblique transverse somewhat irregular leaden-metallic lines from costa to inner margin, indistinct towards base, the three apical lines clearest and becoming whitish on costa; between each pair as far as the sixth is an obscure leaden-metallic costal spot, only the last being distinct; between the sixth and seventh is a small round leaden-metallic spot on disc above middle; seventh line ending on hindmargin about middle; a short curved transverse leaden-metallic line immediately before apex: cilia pale ochreous at apex, becoming fuscous-grey towards anal angle, with a broad leaden-metallic basal line. Hindwings dark fuscous-grey; cilia grey, with a blackish line near base.

♀. Forewings elongate, narrower than in male, not dilated, more suffused, the leaden-metallic markings tending to coalesce in pairs, so as to leave an oblique dark basal patch, central fascia, and costal spot before apex produced to anal angle.

This species may be at once distinguished from *I. ranulana* by the leaden-metallic markings, and generally darker colouring; the male especially is also broader-winged.

Taken rather plentifully near Blackheath on the Blue Mountains, New South Wales, at a height of 3,600 feet, in October; the male flying wildly in the hot sunshine round the tops of tall *Eucalyptus* bushes, the female keeping nearer the ground. I have also a male of this species taken near Sydney nearly on the sea level, which differs only in being more suffused with smoky-fuscous, with the metallic markings broader and more obscure.

##### 5. ATELODORA, *n. g.*

Thorax smooth. Antennæ in male serrated, shortly ciliated. Palpi moderately long, porrected, second joint triangularly scaled,

terminal joint exposed. Forewings elongate-oblong, costa rather strongly arched towards base, in male simple, apex nearly rectangular, hindmargin obliquely rounded beneath. Hindwings rounded-trapezoidal, as broad as forewings. Forewings with 11 veins, all separate; vein 6 to hindmargin, 7 to costa. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base, 6 and 7 stalked.

Distinguishable by the possession of only 11 veins in the forewings, the normal veins 7 and 8 being no doubt coincident. In the American *Amorbia*, Clem., (*Hendecastema*, Wlsm.) the male also has only 11 veins (the female has 12), but that genus belongs to a different group, in which veins 3 and 4 of hindwings rise from the same point, and differs besides in other characters.

1. *Atel. pelochytana*, *n. sp.*

♂ ♀. 5"-6". Head, palpi, and thorax greyish-ochreous. Antennæ of male greyish-ochreous, of female whitish, annulated with dark fuscous. Abdomen whitish-ochreous. Legs ochreous-white, anterior tibiæ and tarsi dark fuscous. Forewings of male pale brownish-ochreous, of female darker, with a few transversely arranged scattered blackish scales; some small blackish marks on inner margin: cilia of male whitish-ochreous, of female brownish-ochreous. Hindwings and cilia whitish, faintly tinged with ochreous.

This species has a rather glossy appearance, and is almost unicolorous.

I received specimens of this species from Mr. G. H. Raynor, who took it not uncommonly at Deloraine in Tasmania, in December, and at Murrurundi and Waratah on the Hunter River, New South Wales, late in September, amongst mixed scrub.

6. *ARISTOCOSMA*, *n. g.*

Thorax smooth. Antennæ in male serrate, with a double row of long ciliations. Palpi moderate, porrected, second joint

elongate-triangularly scaled, terminal joint distinct. Forewings rather triangular, costa rather abruptly arched near base, in male broadly folded towards base, apex nearly rectangular, hindmargin rather oblique, straight. Hindwings elongate-trapezoidal, narrower than forewings, apex somewhat produced. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base, 6 and 7 stalked.

Differs from all the genera with veins 3 and 4 of hindwings remote at base, and 7 and 8 of forewings stalked, by the narrowness of the hindwings, which are distinctly less broad than the forewings, an unusual character in the group. The long ciliations of the antennæ in the male also afford a good characteristic.

1. *Arist. chrysophilana*, Walk.

(*Cacæcia chrysophilana*, Walk., Brit. Mus. Cat. 315.)

♂ ♀. 6"-6½". Head and palpi bright ochreous. Antennæ ochreous-whitish, annulated with dark fuscous. Thorax reddish-ochreous. Abdomen brownish-ochreous, becoming dark fuscous posteriorly. Legs ochreous-whitish. Forewings in male deep reddish-ochreous, brighter and lighter towards inner margin, in female reddish-ochreous-brown; a small semi-ovate yellowish-white blotch on middle of costa, posteriorly enclosing or cut by a small reddish-ochreous costal spot; two very irregular transverse leaden-metallic lines from costa at one-third to inner margin, sharply angulated above middle; before them are some faint metallic scales nearer base; two other brighter leaden-metallic transverse lines from the white costal blotch, very irregular, angulated, broken and interrupted beneath costa, the anterior one divided into several spots; two leaden-metallic lines from costa a little before apex, uniting shortly below costa and thence continued to hindmargin above anal angle; a leaden-metallic apical mark, sometimes separated into three spots: cilia yellowish-white, on anal angle ochreous. Hindwings yellow,

apical third blackish-fuscous, hindmargin very narrowly dark fuscous; cilia dark fuscous.

This beautiful and richly-coloured species has some general resemblance to such species as *Teras holmiana* and *Tortrix bergmanniana*, but is very different in structure; the yellow hindwings are a noticeable point.

I have two specimens, and have seen three others, taken near Sydney and Parramatta, New South Wales, from August to October, flying in the afternoon sunshine or beaten from mixed scrub in rocky places. Walker's specimen is also from Sydney.

#### 7. ADOXOPHYES, *n. g.*

Thorax smooth. Antennæ in male thickened, shortly ciliated. Palpi moderate, porrected, second joint triangularly scaled, terminal joint distinct. Forewings oblong, costa rather strongly arched towards base, in male with a broad basal fold, apex rectangular, hindmargin hardly oblique, rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin, 3 rising from before lower angle of cell. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base, 6 and 7 stalked.

This genus comes near the following *Acropolitis*, from which the best distinction seems to lie in the absence of the thoracic crest; the antennæ of the male are also much less strongly ciliated, and veins 6 and 7 of the hindwings are stalked. From *Aristocosma* it is separated by the much broader hindwings.

#### 1. *Adox. heteroidana*, *n. sp.*

♂. 6"-7". Head, palpi, antennæ, and thorax pale ochreous. Abdomen and legs whitish-ochreous. Forewings short, broad, pale whitish-ochreous, irrorated with ochreous; costa faintly strigulated with ochreous; basal patch indicated by several faintly darker transverse lines; an irregular somewhat oblong fuscous or dark fuscous blotch on inner margin before middle, uniting

with the indications of a basal patch; central fascia irregular, very oblique, running from costa slightly before middle to anal angle, moderately broad, contracted below costa, ochreous-brown or reddish-ochreous, mixed with dark fuscous on inner margin, its anterior edge distinct, angulated below middle, posterior edge suffused except on costa; apex within a very oblique line from two-thirds of costa to middle of hindmargin ochreous-brown mixed with paler towards hindmargin; cilia ochreous-whitish. Hindwings whitish, tinged with ochreous posteriorly.

♀. 10"-11". Head, palpi, and thorax brownish-ochreous. Antennæ pale ochreous, obscurely annulated with fuscous. Abdomen pale ochreous. Forewings longer than in male, hindmargin rather sinuate beneath apex; pale brownish-ochreous, thickly irrorated with darker, with ochreous-brown markings similar to those of male, but almost wholly suffused and very indistinct except on costa and inner margin: cilia ochreous-brown at apex, becoming whitish-ochreous at anal angle. Hindwings whitish-yellow, becoming deeper yellow posteriorly; cilia yellow-whitish.

This species has a strong superficial resemblance to some of the typical species of *Cacocia* and *Pandemis*, and the sexual differences are similar to those which commonly occur in those genera, but the type of neuration is wholly different.

I took four specimens (two males, two females) in the dense subtropical scrubs near Rosewood, Queensland, in September; they were beaten out of the thick vegetation characteristic of the volcanic soil in those districts.

#### 8. THIRINCOPIORA, n. g.

Thorax with erect crest. Antennæ in male ciliated. Palpi moderate, arched upwards, appressed to face, roughly scaled beneath. Forewings oblong, costa arched towards base, in male with broad basal fold, apex rectangular, hindmargin rather obliquely rounded. Hindwings rounded-trapezoidal, broader

than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base.

Nearly allied to *Acropolitis*, from which it only differs in the palpi, which are arched upwards and appressed to the face, rising nearly to the level of the crown, whilst in *Acropolitis* they are straight and horizontally porrected. This difference is well marked and apparently sufficient for generic distinction; but I have not been able to make a thorough examination of the characters of this genus, for want of specimens.

1. *Thrine. impletana*, *Walk.*

(*Tortrix impletana*, Walk., Brit. Mus. Cat. 331.)

♂ ♀. 12"-15". Head and thorax cinereous-grey. Forewings cinereous-grey, irrorated and strigulated with blackish-grey; outer edge of basal patch represented by a black line from one-fifth of costa to one-fourth of inner margin, somewhat angulated in middle; central fascia narrow, cloudy, dark grey, black-margined, from costa before middle, reaching half across wing, the black margins continued thence to meet inner margin (first before middle, second in middle) as slender black lines; a short cloudy grey streak from middle of costa; a cloudy grey triangular costal blotch about three-fourths, black-margined, its apex reaching more than half across wing, its margins thence confluent and produced as a black line to anal angle; a slender grey black-margined streak from costa before apex to hindmargin above anal angle. Hindwings grey, paler towards base, spotted with darker.

The above description is taken from the original types in the British Museum, and is necessarily not quite complete, but I think it is a sufficient diagnosis of the species. Walker's own description is extremely cursory, and evades describing the markings at all.

I have not taken this species, and know of no other specimens but the original types; two of these are stated to be from Tasmania, the third from "Australia," which probably means Tasmania in this case.

9. ACROPOLITIS, *n. g.*

Thorax with large double crest. Antennæ in male thickened, serrate, strongly biciliated. Palpi moderately long, straight, porrected, second joint triangularly scaled, terminal joint distinct. Forewings oblong, costa in male broadly folded and bent before middle, in female evenly arched at base, thence nearly straight, apex rectangular, hindmargin obliquely rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin. Hindwings with veins 3 and 4 rising apart, 5 closely approximated at base to 4 or rising from the same point with it, 6 and 7 separate (in *A. signigerana* stalked).

This genus forms the type of the group to which *Adoxophyes*, *Thrinophora*, *Pyrgotis*, and (less intimately) *Aristocosma* belong; characterised by veins 3 and 4 of hindwings rising apart but near together, 5 closely approximated to 4, forewings with veins 7 and 8 stalked, and broad costal fold in male. From *Adoxophyes* and *Aristocosma* it differs in the crested thorax, from *Thrinophora* in the straight porrected palpi; it is very near to *Pyrgotis*, and the only points of distinction that I have been able to define lie in the more oblong forewings, and the separation of veins 6 and 7 of hindwings, to which latter character *A. signigerana* presents an exception; but the genera are readily separated by superficial characters, and I think will be found capable of definition.

The species are mostly rather large and well-marked insects, having commonly a longitudinal black dash in the disc of forewings, and resemble some of the larger species of *Capua*, to which the genus is in fact nearly allied. In habit they are

sluggish, and they appear to be rather restricted in distribution, and not generally plentiful.

The six species known to me may be analytically arranged as follows :

- A. Thorax white .. .. .2. *magnana*.
- B. Thorax whitish mixed with dark scales.
  - 1. Forewings white, transversely strigulated with grey .. .. .1. *canana*.
  - 2. Forewings whitish, densely irrorated with grey.
    - a. Forewings elongate ; veins 6 and 7 of hindwings stalked .. .. .6. *signigerana*.
    - b. Forewings short and broad .. .. .4. *passalotana*.
- C. Thorax greyish-ochreous .. .. .5. *lignigerana*.
- D. Thorax dark fuscous .. .. .3. *dolosana*.

1. *Acrop. canana*, *Walk.*

(*Tortrix canana*, Walk., Brit. Mus. Cat. 331.)

♂ (?). about 11". Head and thorax whitish, irrorated with grey. Forewings white, with numerous slender irregular transverse fuscous-grey strigulæ; outer edge of basal patch represented by an oblique blackish transverse line about one-fifth rather angulated in middle, apex of angulation connected with a short longitudinal blackish line in disc below middle; central fascia represented by a grey black-margined spot on costa before middle, and a grey oblique streak on inner margin about two-thirds, not reaching half across wing; beyond these is a small grey blotch in disc above middle, margined beneath by a short black longitudinal line; a grey triangular blotch on costa towards apex, its apex expanded into a small irregular spot reaching half across wing, and black-margined; an elongate cloudy-grey streak near hindmargin above anal angle. Hindwings whitish-grey, darker at apex.



Allied to *A. magnana*, but distinguishable by the white ground-colour of the forewings, and the grey irroration of the thorax, as well as by the differences of detail in the markings, and the absence of any ochreous tinge in the hindwings.

Described from Walker's original type in the British Museum Collection, which is the only specimen that I have seen; it is stated to be from Moreton Bay, Queensland. Walker's description is wholly insufficient for identification.

## 2. *Acrop. magnana*, Walk.

(*Tortrix magnana*, Walk., Brit. Mus. Cat. 330.)

♂ 11"-11½", ♀ 14". Head dark fuscous, mixed with white on crown and behind. Palpi dark fuscous, internally white. Antennæ dark fuscous. Thorax white, anteriorly suffused with dark fuscous. Abdomen pale ochreous. Legs ochreous-whitish; anterior tibiæ dark fuscous with two whitish rings, tarsi dark fuscous with slender whitish rings at apex of first two joints; middle tibiæ with two oblique dark fuscous bands, tarsi dark with whitish rings at apex of joints. Forewings broad, costa moderately arched, hindmargin strongly bowed outwards; fuscous mixed with darker; costa strigulated with dark fuscous; a very irregular broad transverse whitish band about one-third, clouded with pale fuscous and coarsely sprinkled with blackish, very strongly angulated outwards a little above middle, broadly and irregularly dilated on inner margin; the enclosed basal patch is irregularly spotted with black; beyond this band is a small blackish costal spot, and in the centre of the disc is a broad (in female very narrow) linear longitudinal black mark, its base resting on the lower side of the angulation of the band, its margins gradually suffused into the ground-colour, its apical extremity concave, followed by a few whitish scales; a somewhat curved blackish line from two-thirds of costa to anal angle, preceded by a rather broad irregular band, of which the upper half is hardly paler than the ground-colour, the lower half white shading

rapidly into ground-colour except posteriorly, so as to leave an obscurely defined oval patch; an irregular narrow subapical white band from middle of hindmargin nearly to costa before apex, dilated above, rather sharply margined with dark fuscous, and containing several fuscous scales: cilia with basal third barred with dark fuscous and white, remainder greyish-ochreous. Hindwings pale greyish-ochreous, spotted obscurely with darker, hindmargin narrowly dark ochreous-grey; cilia whitish-ochreous with an ochreous-grey parting-line.

Broader-winged than the other species of the genus, and readily known by the white markings on a dark ground, and the ochreous tint of hindwings; it is a handsome and very distinct species.

I took five specimens (four males, one female) at rest on a fence during a high wind, near Sydney, in October. Walker's type is also from Sydney; his description, though incomplete, is quite recognisable.

### 3. *Acrop. dolosana*, Walk.

(*Tortrix dolosana*, Walk., Brit. Mus. Cat. 331).

♂. 10". Head, palpi, antennæ, and thorax dark fuscous. Abdomen greyish-ochreous. Legs greyish-ochreous, anterior tibiæ and tarsi dark fuscous. Forewings moderate, costa somewhat bent before middle; dull greyish-fuscous, costa obscurely strigulated with dark fuscous; an irregular dark fuscous blotch in middle of disc, extending to costa, becoming longitudinally blackish in the centre, anteriorly sharply margined, elsewhere suffused into ground-colour; connected with the anterior edge of this blotch below middle is a short linear, anteriorly sharply dilated, black mark; nearer base are two or three small irregular blackish spots; a dark fuscous irregular line from a little beyond middle of costa to anal angle, rather concave and distinct anteriorly, posteriorly suffused; between it and central

blotch is a short black longitudinal streak in middle of disc; beyond the oblique line are two or three obscure dark fuscous transverse lines from costa, uniting with it: cilia greyish-fuscous, barred with dark grey, and with a slender black waved basal line. Hindwings fuscous-grey, cilia rather darker, with a dark basal line.

♀. 13". Forewings rather abruptly arched near base, dull greyish-fuscous indistinctly clouded with darker; markings as in male but very suffused and indistinct, central blotch obscured, black longitudinal streaks before and beyond middle slender but clearly perceptible. Hindwings more ochreous-tinged than in male.

Recognisable in both sexes by its dark and suffused colouring. Described from my own specimens, the identity of which with Walker's species is not absolutely assured; Walker's type is a single female (one of the *Geometrina* has been subsequently added as a second example), of which the forewings appear to be somewhat roughened with raised scales, and more blackish-tinged; but in the absence of sufficient material I think it will be best to consider the specimens as forming only a single species.

I have two specimens (male and female) taken near Melbourne by Mr. G. H. Raynor. Walker's specimen is from Tasmania.

*Note.*—I have another female of this genus (also from Melbourne), which may either be a variety of the above, or a new species; it is smaller (11½") but similar in shape, the forewings more variegated with lighter fuscous and ochreous, the hindwings pale ochreous spotted with grey, with dark grey hindmargin.

#### 4. *Acrop. passalotana*, *n. sp.*

♀. 9". Head, palpi, and thorax whitish mixed with fuscous. (Antennæ broken.) Abdomen pale ochreous, whitish on sides. Legs whitish, anterior tibiæ and tarsi banded with dark fuscous. Forewings short and broad, costa rather strongly arched towards

base; whitish, closely irrorated with greyish-fuscous, especially towards apex; costa and inner margin marked with small dark fuscous spots; an irregular outwardly curved transverse dark fuscous line near base; a subquadrate dark fuscous spot on costa before middle; a strong black longitudinal mark in middle of disc, sharply margined above and in front, beneath bordered by a small dark fuscous blotch; from its posterior extremity proceed two irregular obscure blackish lines to costa between middle and three-fourths, enclosing a suffused fuscous blotch, and a sharper black waved line to anal angle, anteriorly margined with fuscous: cilia fuscous mixed with whitish. Hindwings grey, darker towards apex, and indistinctly mottled with darker; cilia grey, with a darker basal line.

This insect appears so distinct, that it is worth describing even in the absence of the male, which has doubtless special differences. It differs from the female of all other species in the genus by the comparative shortness and breadth of the forewings, and the strength and conspicuousness of the longitudinal black discal streak.

I took one specimen in the bush-clad ranges near Toowoomba, Queensland, about 2,000 feet above the sea, in September.

##### 5. *Acrop. lignigerana*, *Walk.*

(*Pædisca lignigerana*, *Walk.*, *Brit. Mus. Cat.* 380.)

♂.  $10\frac{1}{2}''$ - $12\frac{1}{2}''$ . Head, palpi, and thorax greyish-ochreous, irrorated with darker. Antennæ ochreous-fuscous. Abdomen ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi broadly banded with dark fuscous. Forewings moderate, costa somewhat bent about middle; whitish-ochreous irrorated with fuscous, becoming whitish at apex and above anal angle; costa and inner margin very shortly strigulated with blackish; a small erect whitish tuft on inner margin at one-fourth; a small oblique dark fuscous blotch on costa at one-fourth; a slender

irregular, more or less interrupted, blackish longitudinal line from centre of disc to hindmargin above middle, beneath posterior part of which is a slenderer parallel similar line; a subquadrate dark fuscous blotch below middle of disc, its upper edge parallel to the blackish line, lower edge suffused; connected with its anterior edge is a short irregular longitudinal dark fuscous mark, and the basal portion of wing is obscurely spotted with fuscous; a suffused triangular dark fuscous blotch on costa at three-fourths, its apex connected with a roundish dark fuscous blotch before middle of hindmargin; a small elongate dark fuscous blotch on hindmargin above middle: cilia ochreous-whitish, barred with dark fuscous. Hindwings fuscous-grey, cilia whitish with a grey basal line.

Nearly allied to the succeeding *A. signigerana*, but larger and more ochreous-grey, and without the distinct ochreous discal patch of that species in the male. Walker's type is poor, but appears to be really this species; his description is inadequate.

I have two specimens (males) sent by Mr. G. Barnard from Coomoooolaroo, near Duaringa, Northern Queensland; Walker's specimen is from Moreton Bay, Queensland.

#### 6. *Acrop. signigerana*, Walk.

(*Tortrix signigerana*, Walk., Brit. Mus. Cat. 332; *Sciaphilarudisana*,  
ibid. 349; *Penthina indecretana*, ibid. 377.)

♂. 8"-10½". Head, palpi, and thorax whitish mixed with ashy-grey and black scales, shoulders tinged with ochreous. Antennæ dark fuscous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with blackish. Forewings rather elongate, costa somewhat bent before middle; whitish, thickly strewn with ashy-grey and dark fuscous scales; costa indistinctly strigulated with dark fuscous; a small ochreous basal spot beneath costal fold, and an ochreous spot on inner margin near base; some irregular fuscous spots about one-third;

a strong sharply-defined black longitudinal mark in middle of disc, its anterior extremity connected with an oblique dark fuscous streak running to costa at one-third, and also produced a little beneath towards inner margin; above the black mark is a suffused ochreous patch; below it is a fuscous-grey cloud, suffusedly continued to anal angle; a cloudy fuscous-grey triangular blotch on apical third of costa, from apex of which proceeds a very irregularly waved cloudy-grey streak to hindmargin above anal angle; a small elongate cloudy-grey blotch on middle of hindmargin: cilia whitish, basal third separated by an interrupted dark fuscous line and barred with dark fuscous. Hindwings fuscous grey; cilia fuscous-grey, extreme tips and base whitish.

♀. 11½". Forewings with costa moderately arched near base; markings as in male, but the ochreous tints generally replaced by grey, central black mark extremely slender, basal patch more distinctly but very irregularly indicated. Hindwings slightly paler than in male, spotted with darker.

The narrowest-winged species of the genus, distinguished by its ashy-grey tints and the ochreous discal patch of the male; it also has veins 6 and 7 of hindwings stalked, and therefore approximates to *Pyrgotis*, but is too intimately allied to the preceding species to be separated from it.

Tolerably common and generally distributed; I have usually found it at rest on tree-trunks. It occurs at Sydney and Parramatta, at Melbourne, and at Helidon in Queensland; from September to November.

The types of Walker's descriptions quoted above are all referable to this species; that of *Sciaph. rudisana* is much worn, the others are normal.

#### 10. PYRCOTIS, n. g.

Thorax with large broad erect crest. Antennæ in male thickened, strongly ciliated. Palpi moderate, porrected, second

joint shortly triangular-scaled, terminal joint distinct. Forewings triangular, posteriorly much dilated, costa in male with broad basal fold, hardly arched, not bent, apex rather produced, hindmargin sinuate. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin. Hindwings with veins 3 and 4 separate at origin but very near together, 5 closely approximated to 4 at base, 6 and 7 stalked.

Nearly allied to *Aeropolitis*, but veins 6 and 7 of hindwings are always stalked, the costa of forewings is hardly bent in the male, the apex is always more or less produced and the hindmargin sinuate beneath it, whilst in *Aeropolitis* the apex is rectangular.

The species are rather brightly coloured with ochreous or ferruginous tints.

I am acquainted with one Australian species, and four from New Zealand, which may be thus tabulated :

- A. Forewings reddish-ochreous, with two dark ferruginous dorsal spots . . . . .1. *insignana*.
- B. Forewings pale ochreous with dark fuscous fascia and markings.
1. An inwardly oblique streak from costa at three-fourths, meeting central fascia . . .2. *plagiata*.
2. A small sharply defined dark spot on costa at three-fourths.
- a.* Cilia of forewings ochreous . . . . .4. *conditana*.
- b.* Cilia of forewings dark fuscous . . . . .3. *gavisana*.
- C. Forewings greyish-ochreous, shading into dark reddish-brown posteriorly . . . . .5. *porphyreana*.

1. *Pyrg. insignana*, *n. sp.*

♂ ♀ . 6". Head, palpi, and antennæ reddish-ochreous. Thorax deep reddish-ochreous, crest large, dark ferruginous. Abdomen ochreous. Legs ochreous-whitish, anterior and middle tibiæ and

tarsi broadly banded with dark fuscous. Forewings triangular, costa very slightly arched, apex somewhat produced, hindmargin sinuate, slightly oblique; dark reddish-ochreous, somewhat deeper towards base and inner margin; two small sharply-defined dark ferruginous spots on inner margin, first rather near base, semiovate, second in middle, acute-triangular, erect, reaching nearly half across wing, slenderly margined with pale yellowish; cilia dark reddish-ochreous, with a blackish apical line. Hindwings in male grey-whitish, tinged with pale reddish-ochreous, except at base, in female light ochreous-grey; cilia whitish, with a grey basal line.

This, the only Australian representative of the genus, is very distinct in markings, and could not be confused with any other known species of the group.

I have three specimens (two males, one female) taken at Blackheath in the Blue Mountains, New South Wales, at an elevation of 3,600 feet, and near Brisbane; I have also seen a specimen from near Melbourne. These were taken in September and October, and (probably a second generation) in March, flying in the afternoon sunshine amongst *Eucalyptus* scrub.

## 2. *Pyrg. plagiatana*, Walk.

(*Conchylis plagiatana*, Walk., Brit. Mus. Cat. 370; *Conchylis recusana* ibid. 371; *Grapholitha punana*, Feld., Reis. Nov., pl. cxxxvii, 43; ? *G. xylinana*, ibid. 44.)

♂. 7"-8½". Head, palpi, and antennæ ochreous-grey-whitish, palpi beneath mixed with dark fuscous. Thorax grey-whitish, irregularly suffused with ochreous; crest large, dark brownish-ochreous, in front mixed with black. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark smoky-fuscous. Fore-wings triangular, costa hardly arched until just before apex, apex rather strongly produced, hindmargin oblique; whitish, more or less (sometimes wholly) suffused with



pale ochreous, becoming darker towards inner margin; an ochreous-fuscous or dark fuscous angulated fascia close to base, starting obliquely from one-sixth of costa, sharply angulated in middle, ending at one-fifth of inner margin, the upper portion often partially obsolete; costal fold ochreous; costa irregularly strigulated with dark fuscous; inner margin often obscurely suffused with dark fuscous, especially towards base; a straight oblique rather narrow ochreous-fuscous or dark fuscous fascia from one-third of costa to inner margin a little before apex, dilated and enclosing a small pale spot on costa, thence straight and uniting with the other fascia below middle of wing, so as to enclose a large pale costal triangle; a broad irregularly oval fuscous blotch almost on hindmargin above anal angle, darkest above, sometimes uniting with extremity of second oblique fascia; a short dark fuscous irregular streak from apex close to hindmargin: cilia rather pale ochreous, with two slender grey-fuscous lines near base. Hindwings whitish, faintly tinged with ochreous at apex, spotted with grey, especially towards base and inner margin; cilia whitish.

A variable species, differing much in the intensity of colouring, but generally to be known by the tolerably well-defined pale costal triangle enclosed by the fuscous fasciæ; it has also a more variegated appearance than the two following species, to which it is nearly allied.

The species appears to be common and generally distributed in New Zealand; I took it plentifully near Dunedin in January, and also at Christchurch and Wellington; and one of Walker's types is from Auckland; it occurs amongst ordinary bush. All my specimens are however males, and I have not met with the female; the types described by Walker are ordinary varieties.

### 3. *Pyrg. gavisana*, *Walk.*

(*Pandemis gavisana*, Walk., Brit. Mus. Cat. 312; *Conchylis marginana*, *ibid.* 371.)

♀. 6"-8". Head and thorax pale ochreous. Abdomen ochreous-whitish. Forewings moderate, costa rather arched towards base, somewhat sinuate beyond middle, apex somewhat produced, hindmargin rather oblique; pale ochreous; central fascia oblique, dark ochreous-brown, starting from costa before middle, reaching half across wing, its anterior edge thence obscurely produced to inner margin before anal angle; a small triangular dark ochreous-fuscous blotch on costa about three-fourths; cilia dark fuscous, extremities pale. Hindwings whitish.

Described from Walker's types, which are the only specimens I have seen. The species appears to be really distinct; it may be at once known from the preceding and following by the conspicuously contrasted dark fuscous cilia of the forewings. The locality of the two specimens is merely given as New Zealand.

#### 4. *Pyrg. conditana*, *Walk.*

(*Teras conditana*, *Walk.*, *Brit. Mus. Cat.* 306.)

♂. 10". Head and thorax pale ochreous. Abdomen grey-whitish. Forewings moderate, apex somewhat produced, hindmargin rather oblique; light brownish-ochreous; central fascia rather broad, irregular, oblique, dark fuscous, upper half clearly marked, lower half suffused and indistinct; a small flattened semi-oval blotch on costa about three-fourths; cilia light ochreous. Hindwings whitish, faintly ochreous-tinged, scantily spotted with grey.

I have only seen Walker's type; it is possible that it may be the male of the preceding species, but the ochreous cilia and differently shaped costal spot seem to afford sufficient grounds for distinction. The type is stated to be from Auckland, New Zealand, and is in very poor condition.

#### 5. *Pyrg. porphyreana*, *n. sp.*

♂. 7". Head and antennæ whitish-ochreous. Palpi rather long, purple-fuscous, internally whitish. Thorax pale ochreous,

irrorated with fuscous on margins. Abdomen pale ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with dark fuscous except at apex of joints. Forewings triangular, costa slightly bent before middle, apex very slightly produced, hindmargin oblique; light greyish-ochreous at base, becoming ochreous in middle, shading into dark reddish-ochreous-brown along hindmargin, where it appears to form a broad suffused band; the whole surface of the wing is strewn with numerous small obscure spots of pale leaden scales; costal fold dark fuscous; costal edge very narrowly white from extremity of fold to a little before apex: cilia reddish-ochreous-brown, at anal angle fuscous-grey, extremities white. Hindwings whitish-grey, spotted with darker grey, apex darker; cilia whitish-grey, with a darker basal line.

A very distinct species; I took one specimen amongst scrub near Wellington, New Zealand, in January.

#### 11. CAPUA, Steph.

Thorax smooth, or slightly crested. Antennæ in male thickened, somewhat dentate, strongly ciliated. Palpi moderate or rather long, straight, porrected, second joint triangularly scaled. Forewings short, subtriangular, costa in male with broad basal fold, bent before middle, thence nearly straight, hindmargin oblique, hardly rounded; in male often with an expansible tuft of hairs beneath costal fold. Hindwings rather elongate, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 from a point or short-stalked, 5 moderately approximated to 4 at base, 6 and 7 stalked.

This genus forms the type of a group characterised by veins 3 and 4 of hindwings rising from the same point, 7 and 8 of forewings springing from the same stalk, and the presence of the costal fold in the male. It differs from the other Australian members of the group, *Asthenoptycha* and *Acroceuthes*, in the

breadth and completeness of the costal fold, which in those genera is very short and imperfect; from the North American *Platynota* in the absence of tufts of raised scales on the forewings; from the South American *Cerorrhineta* in the shorter palpi and absence of scaly dilation of the antennæ.

The species are mostly rather small insects, and usually of sombre colouring; some are very plentiful and of general occurrence. In superficial features they bear a close analogy to *Dichelia*, which genus only differs by the absence of the costal fold in male.

There is only one European species; two have been described from North America, and I have ten Australian and two New Zealand species, which are hereafter described. These latter may be thus distinguished:

- A. Forewings yellow, with two perpendicular  
blackish fasciæ .. .. .12. *plathanana*.
- B. Forewings pale whitish-ochreous.
1. Head whitish-ochreous.
- a.* Forewings with a dark fuscous longitudinal streak above fold .. .. 4. *hemicosmana*.
- b.* Forewings without a dark fuscous longitudinal streak .. .. .2. *decolorana*.
2. Head blackish-fuscous .. .. .3. *vacuana*.
- C. Forewings white .. .. .11. *scutiferana*.
- D. Forewings grey-whitish, irrorated with darker.
1. Markings dark fuscous, black-margined 5. *melanrocana*.
2. Markings suffused fuscous-grey.. .. 1. *aoristana*.
- E. Forewings grey-whitish coarsely irrorated with ochreous-reddish .. .. .6. *montanana*.
- F. Forewings brownish.
1. With pale greyish-ochreous space beneath costal fold .. .. .10. *obfuscatana*.

2. Without pale greyish-ochreous space beneath costal fold.

a. Basal patch darker than ground-colour 9. *sordidatana*.

b. Basal patch not darker, only outer edge indicated.

i. Face dark fuscous .. .. 7. *chimerinana*.

ii. Face pale ochreous .. .. 8. *semiferana*.

1. *Cap. aoristana*, *n. sp.*

♂.  $6\frac{1}{4}$ "- $6\frac{1}{2}$ ". Head, palpi, and thorax ochreous-grey-whitish, mixed with darker. Palpi elongate, more than twice as long as head, irrorated on sides with dark fuscous. Antennæ grey-whitish, slenderly annulated with dark fuscous. Abdomen greyish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous-grey above. Forewings posteriorly dilated, rather broad, costa moderately arched, somewhat bent before middle, hindmargin nearly straight, rather oblique: ochreous-whitish, thinly irrorated with whitish-grey; costa and inner margin obscurely strigulated with fuscous-grey; basal patch represented by an obscure ochreous-grey or fuscous-grey outwardly oblique streak from one-third of inner margin, reaching more than half across wing; central fascia suffused, obscure fuscous-grey, only distinct on costa, moderately narrow, straight, running from middle of costa to inner margin before anal angle; an irregular obscure brownish-grey cloud on costa at three-fourths, suffusedly produced nearly to anal angle; cilia ochreous-whitish, with a slender dark grey line near base. Hindwings grey, faintly spotted with darker, apex darker; cilia whitish-grey, with a darker basal line.

This species has an indistinct and faded appearance, from the faintness of its markings, but does not approach very nearly to any other, being further distinguished by the elongation of its palpi; in form of wing it is very similar to *Pyrg. porphyreana*.

I took two males at Wellington, New Zealand, amongst forest growth in January; and later another at Auckland.

2. *Cap. decolorana*, *Walk.*

(*Grapholita decolorana*, *Walk.*, *Brit. Mus. Cat.* 392.)

♂ ♀. 6"-6½". Head, palpi, antennæ, thorax and abdomen pale whitish-ochreous. Legs ochreous-whitish, anterior and middle tarsi dark fuscous towards base of joints. Forewings moderate, costa gently arched, slightly bent before middle, hind-margin almost straight, oblique; pale whitish-ochreous, sometimes irregularly suffused with darker ochreous; costa and inner margin irregularly strigulated with dark fuscous; a small oblique ochreous-fuscous spot below middle at one-third from base, posteriorly blackish-edged, representing angle of an obsolete basal patch; central fascia very oblique, from before middle of costa to anal angle, ochreous-fuscous mixed posteriorly with dark fuscous, narrow on costa, lower two-thirds much dilated but anteriorly suffused; a subquadrate ochreous-fuscous spot on costa before apex, its angle towards middle of disc somewhat produced; an irregular obscure dark fuscous line from apex along hind-margin: cilia whitish-ochreous, extremities mixed with dark fuscous, especially towards anal angle; costal fold of male with an expansible tuft of whitish hairs. Hindwings and cilia whitish or pale grey.

Distinguished from the other pale ochreous species by its much lighter markings; it is also proportionately rather broader-winged and the central fascia is conspicuously dilated on its lower two-thirds.

I have six specimens, taken at Sydney, Bulli, and Murrurundi, New South Wales, in October and April, amongst dry scrub; and have also seen others from Launceston, in Tasmania, and from Melbourne. Walker's type is from Sydney.

3. *Cap. vacuana*, *Walk.*

(*Conchylis vacuana*, *Walk.*, *Brit. Mus. Cat.*, 367; *Grapholita mutata*, *ibid.* 393.)

♂ ♀. 5"-7". Head blackish-fuscous, becoming greyish-ochreous behind, especially in female. Palpi blackish-fuscous. Antennæ whitish-ochreous, in female annulated with dark fuscous. Thorax whitish-ochreous, sometimes anteriorly greyish-fuscous. Abdomen whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings rather elongate, costa in male moderately arched, in female rather straighter, hindmargin straight, very oblique; pale whitish-ochreous, irregularly mixed with ochreous, costa and inner margin irregularly strigulated with dark fuscous; basal patch represented only by five or six irregularly scattered blackish dots; central fascia very oblique, from before middle of costa to inner margin before anal angle, dark fuscous, narrow, not dilated, clearly defined and black-margined; costa in male narrowly dark fuscous towards base; a small dark fuscous black-margined triangular spot on costa at two-thirds, from apex of which proceeds a slender blackish line to anal angle; another slender blackish line crosses the wing between this and apex; a sharply-marked blackish hindmarginal streak from beneath apex to a little above anal angle: cilia pale ochreous, with a dark grey apical spot, and dark fuscous basal line becoming obsolete towards anal angle. Hindwings and cilia whitish-grey, somewhat darker posteriorly.

Immediately recognisable from the allied species by the blackish-fuscous head; it is a rather neatly marked insect, somewhat resembling *Dich. clara*.

Common and generally distributed; it occurs near Sydney, Parramatta, and Bulli, in New South Wales; near Melbourne; at Launceston in Tasmania; and at Brisbane, Helidon, and

Toowoomba, in Queensland; during October, and from December to February, amongst thin bush.

4. *Cap. hemicosmana*, *n. sp.*

♂ ♀, 5 $\frac{3}{4}$ ". Head, palpi, and thorax whitish-ochreous, somewhat mixed with darker. Antennæ whitish-ochreous, annulated with dark fuscous. Abdomen pale greyish-ochreous. Legs whitish, anterior pair suffused with dark fuscous, middle tarsi banded with dark fuscous. Forewings rather elongate, costal gently arched, in male somewhat bent before middle, hindmargin straight, oblique; very pale whitish-ochreous, costa obscurely strigulated with dark fuscous, costal edge in male suffusedly dark fuscous towards base; a blackish suffused somewhat interrupted longitudinal streak above the submedian fold from near base to about middle; outer edge of basal patch obscurely indicated in female by a dark fuscous outwardly oblique line from costa at one-fourth, ending in the longitudinal streak; central fascia dark fuscous mixed with blackish, rather narrow, very oblique, from before middle of costa, reaching only half across wing, beneath truncate and margined by a longitudinal black line, of which the posterior extremity is somewhat produced and bent downwards; a moderately large triangular dark fuscous costal blotch, mixed with blackish, extending on costa from middle to a little before apex, sharply defined, apex blackish and reaching half across wing; anal angle and lower part of hindmargin obscurely clouded with faint grey; a short linear blackish streak from apex along upper part of hindmargin: cilia pale whitish-ochreous, with a blackish-grey line near base. Hindwings whitish-grey; cilia whitish, with a faint grey line near base.

Closely allied to *C. vacuana*, but apart from the whitish-ochreous head, easily known by the markings extending only across the costal half of the forewings, and by the blackish longitudinal discal streak.



Mr. G. H. Raynor took two specimens (male and female) at Warragul in Gippsland, Victoria, in December.

5. *Cap. melanrocana*, *n. sp.*

♂ ♀. 7"-8". Head and palpi dark fuscous, in female mixed with pale grey. Antennæ dark fuscous, slenderly annulated with whitish. Thorax pale grey, anterior margin broadly dark fuscous. Abdomen pale ochreous-grey. Legs whitish, anterior and middle tibiæ dark fuscous, all tarsi dark fuscous with whitish rings at apex of joints. Forewings moderate, somewhat dilated, especially in male, costa in male rather strongly arched, somewhat bent in middle, in female moderately arched towards base, hindmargin oblique; pale whitish-grey, with very faint transverse lines of pale purplish-grey and sometimes of blackish scales; costa and inner margin strongly strigulated with blackish; basal patch represented in male by a broad blackish outwardly oblique streak from one fourth of inner margin, reaching half across wing, in female obsolete; central fascia oblique, from before middle of costa to inner margin at two-thirds, dark fuscous, sharply margined with blackish, in male obsolete on costa, in female distinct throughout, upper half narrow, lower half abruptly and broadly dilated, the posterior margin being suddenly bent out in middle; a semicircular dark fuscous-grey blackish-margined patch on costa at two-thirds; a small irregular dark fuscous blotch near hindmargin above anal angle, connected with hindmargin by a blackish line; a strong black line along hindmargin: cilia pale whitish-grey, suffused with reddish-ochreous along hindmargin, with a blackish line near base. Hindwings pale grey, spotted with darker; cilia pale grey, with a darker basal line.

Distinguished from all other species of the genus by the character of the sharply-defined dark fuscous-grey black-margined markings on a pale grey ground; a very similar type of colouring is found in *Cacæcia lythrodana*.

Taken at Sydney and Parramatta, in September and October, amongst dry bush in sheltered places, generally flying near the ground; it is restricted in locality and not common.

6. *Cap. montanana*, *n. sp.*

♂.  $7\frac{1}{2}$ ". Head brownish-grey. Palpi brownish-grey, internally whitish, beneath mixed with dark fuscous. Antennæ greyish-ochreous. Thorax ochreous-brown, dark fuscous in middle. Abdomen silvery-grey, anal tuft whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings elongate, somewhat dilated, costa gently arched, not bent, hindmargin very oblique, an expansible tuft of whitish hairs beneath costal fold; grey-whitish, coarsely and irregularly strewn with ochreous-reddish scales, especially in centre of disc and towards apex; costa and inner margin irregularly strigulated with blackish, costa marked with four larger blackish spots between middle and apex; basal patch indicated by a transverse dark fuscous line from before one-fourth of costa to one-fourth of inner margin, angulated above middle; a small triangular dark fuscous spot on inner margin before middle; central fascia indistinct, irregular, from before middle of costa to inner margin before anal angle, brownish-red, suffused with blackish above and below middle, and on costa and inner margin; a triangular dark fuscous blotch on anal angle, its apex connected with a small irregular dark fuscous blotch in disc above middle at two-thirds from base; a blackish elongate streak along hindmargin; cilia pale ochreous, reddish-tinged at apex, becoming whitish at anal angle, with a blackish line near base along hindmargin. Hindwings light grey, indistinctly spotted with darker; cilia whitish-grey, with an indistinct darker grey basal line.

Readily distinguished by the ochreous-reddish irroration on a grey-whitish ground, and the definiteness of the markings.

One male, taken at Blackheath in the Blue Mountains, New South Wales, about 3,600 feet above the sea, in March, amongst low heathy scrub.

7. *Cap. chimerinana*, *n. sp.*

♂.  $5\frac{1}{2}$ "- $7\frac{1}{2}$ ". Head ochreous-brown, face dark fuscous. Palpi dark fuscous, internally whitish. Antennæ whitish-ochreous, annulated with dark fuscous. Thorax ochreous-brown, mixed with dark fuscous. Abdomen greyish-ochreous, anal tuft whitish-ochreous. Legs whitish-ochreous, anterior and middle pair suffused above with dark fuscous. Forewings rather elongate, somewhat dilated, costa moderately arched, hardly bent, hindmargin nearly straight, oblique, costal fold enclosing an expandible tuft of pale grey hairs; brownish-ochreous or ochreous-brown, thinly or sometimes densely sprinkled with dark fuscous: costa and inner margin obscurely strigulated with dark fuscous, sometimes suffused; basal patch obsolete, sometimes represented by one or two faint transverse lines or scattered blackish dots; a small obscure dark fuscous subquadrate spot on inner margin before middle; central fascia oblique, from middle of costa to inner margin just before anal angle, dark fuscous, moderately narrow, broadest below middle, its anterior edge nearly straight, posterior edge with a short abrupt semicircular excavation slightly above middle; a broadly triangular dark fuscous patch on costa hardly before apex; an obscure elongate dark fuscous streak on middle of hindmargin, sometimes suffused: cilia ochreous or whitish-ochreous, with a blackish or dark grey line near base. Hindwings grey, indistinctly spotted with darker; cilia grey, with a darker basal line.

This and the three following species form a closely allied group, the members of which are very similar and obscure in colouring, and often difficult to separate, especially as they all present some range of variation. This species comes nearest to the New Zealand *C. semifera*, from which it can only be distinguished

with certainty by the dark fuscous face; from *C. sordidatana* it is also separated by the same character, as well as by the slightly narrower forewings, and the obsolescence of the basal patch; *C. obfuscatana* is smaller, shorter, and broader-winged, usually with a distinct pale ochreous space beneath the costal fold, and the darker markings almost wholly suffused and obliterated.

Tolerably common near Sydney and Parramatta amongst dry bush, in June, and from October to December.

#### 8. *Cap. semiferana*, Walk.

(*Teras semiferana*, Walk., Brit. Mus. Cat. 306; *Sciaphila detritana*, ibid. 356; *Tinea admotella*, ibid. 485; *Grapholita abnegatana*, ibid. 991.)

♂ ♀.  $5\frac{1}{4}$ "-7". Head ochreous-grey or ochreous-brown, face pale ochreous. Palpi pale ochreous, dark fuscous on sides. Antennæ pale ochreous, annulated with dark fuscous. Thorax dark greyish-ochreous or fuscous. Abdomen greyish-ochreous, anal tuft of male pale ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi dark fuscous ringed with pale ochreous. Forewings moderate, in male dilated, costa moderately arched, hardly bent, hindmargin nearly straight, oblique; in female more elongate, not dilated, costa arched towards base, hindmargin more rounded; brownish-ochreous or ochreous-brown, often irregularly transversely strigulated with dark fuscous; costa and inner margin coarsely strigulated with blackish; basal patch distinctly indicated in male by a blackish spot at base of costa and a blackish inwardly oblique streak from disc near base to inner margin, in female obsolete; central fascia oblique, from before middle of costa to inner margin before anal angle, dark fuscous, containing a blackish longitudinal mark above middle, lower half often obsolete, anterior edge distinct, waved, posterior edge generally uniting with a dark fuscous triangular patch on costa before apex so as to form a larger triangular blotch; an elongate dark fuscous cloud near middle of hindmargin, often

connected with the costal patch, in female obliterated; a blackish interrupted hindmarginal line: cilia pale ochreous, paler towards anal angle, with a darker basal line.

This species shows a good deal of variability in size, and in distinctness of marking; some of the forms approach very closely to *C. chimerinana*, but always differ in the pale ochreous face, and in the possession of a distinct blackish longitudinal mark in the middle of the central fascia. From *C. sordidatana* it is distinguished by the narrower forewings, the incomplete indications of a basal patch, and the generally lighter and less suffused ground-colour.

I took the species commonly amongst scrub near Dunedin and Christchurch, New Zealand, in January; and later in the same month three specimens of a small and more variegated form in the swampy forest near Hamilton, on the Waikato River; these latter were probably a second generation.

Walker's types of *Sciaphila detritana* and *Tinea admotella* are exceedingly poor in condition, but appear to be correctly referred.

♀. *Cap. sordidatana*, *n. sp.*

♂ ♀. 6"-8½". Head greyish-brown, face paler. Palpi dark fuscous, internally whitish. Antennæ whitish-ochreous, annulated with dark fuscous. Thorax greyish-brown, suffused with dark fuscous. Abdomen ochreous-grey, anal tuft of male dull whitish mixed with grey. Legs ochreous-whitish, anterior tibiae suffused with dark fuscous, anterior and middle tarsi banded with dark fuscous. Forewings moderately broad, in male short, dilated, costa rather strongly arched and bent before middle, hindmargin straight, oblique, in female more elongate, costa strongly but evenly arched towards base; dull reddish-grey-brown, irregularly mixed with pale greyish-ochreous scales; costa and inner margin coarsely and obscurely strigulated with blackish, often partially suffused; basal patch small, obscure

dark fuscous, its outer edge distinct, obtusely angulated outwards, in male forming a black oblique spot below the angle; central fascia distinct on costa before middle, obscure dark fuscous, extending to a blackish longitudinal mark in middle of disc (in female obsolete), thence obliterated on the inner edge faintly traceable (especially in female); an indistinct broadly triangular dark fuscous blotch on costa towards apex; a roundish dark fuscous blotch on anal angle, anteriorly indistinct and suffused, posteriorly distinct, often connected above with the costal triangular blotch; a small triangular elongate dark fuscous blotch on middle of hindmargin; all these markings are very obscure and often suffused: cilia grey-whitish mixed with ochreous, with two suffused blackish-grey lines, often more or less distinctly chequered. Hindwings grey, faintly spotted with darker; cilia pale grey, with a dark grey basal line.

A very dull and obscure-looking species; broader-winged and rather larger than either *C. chimerinana* or *C. semiferana*, with darker ground-colour, more suffused markings, and a distinct darker basal patch. It resembles *C. obfuscatana* in breadth of wing, but is generally considerably larger, with distinct darker markings, and without the pale patch beneath costa near base.

Mr. G. H. Raynor found this species very abundant in gardens round Melbourne, flying in great numbers round roses and other shrubs in the evening; and I have taken it occasionally near Sydney, in August and September.

10. *Cap. obfuscatana*, *n. sp.*

♂. 5"-6½". Head and thorax ochreous-fuscous mixed with blackish. Palpi brownish-ochreous, internally white. Antennæ brownish-ochreous. Abdomen greyish-ochreous, anal tuft whitish. Legs whitish, anterior tibiæ and tarsi suffused with dark fuscous. Forewings short, rather broad, costa rather strongly bent in middle, hindmargin oblique, an expansible tuft of whitish hairs beneath fold; greyish-ochreous, irregularly suffused throughout

with dark fuscous mixed with blackish, so that no distinct markings are discernible, except that the costal fold and a semi-ovate space below it are generally paler greyish-ochreous or clear ochreous, and not suffused: cilia dark fuscous-grey mixed with ochreous, with a black interrupted line near base. Hindwings whitish-grey, darker towards apex, and spotted with darker ochreous-grey; cilia whitish, with a darker grey basal line.

Distinguished by its small size, short broad forewings, and general dark fuscous suffusion, without distinct markings except (usually) the pale subcostal space near base. The female is still unknown to me, and may probably differ in these respects.

Occasionally taken, especially at light, by which it is strongly attracted; it occurs at Sydney, Bulli, and Kiama, in New South Wales, from September to February.

11. *Cap. scutiferana*, *n. sp.*,

♂ ♀. 5"-6". Head, palpi, antennæ, and thorax ochreous-white; palpi in male rather directed upwards, but oblique and not appressed to face, in female straight, horizontally porrected. Abdomen pale ochreous. Legs whitish, anterior tibiæ and tarsi suffused with dark fuscous. Forewings rather short, somewhat dilated, more strongly in male, costa in male strongly arched, slightly bent before middle, in female strongly arched at base, thence nearly straight, hindmargin nearly straight, very oblique; white, faintly suffused with pale ochreous; costa and inner margin with a few irregular blackish strigulations towards base; basal patch indicated by a rather oblique blackish streak from inner margin at one-fourth, reaching half across wing, in female uniting there with a slender black line from one-sixth of costa; central fascia rather oblique, from costa before middle to inner margin beyond middle, blackish mixed with ochreous-fuscous, upper half rather narrow, lower half abruptly and strongly dilated, the posterior edge being suddenly bent outwards in middle; a blackish triangular patch on costa at two-thirds, its

apex almost or quite confluent with the angle of the dilated portion of central fascia ; a small blackish spot on costa between triangular patch and apex : cilia pale ochreous, becoming more whitish at anal angle, obscurely barred with blackish. Hindwings in male ochreous-whitish, greyish-whitish at apex, cilia ochreous-white ; in female pale ochreous-grey, posteriorly darker, cilia pale ochreous-grey with a darker basal line.

A small but conspicuously distinct species, at once known by the well-contrasted blackish markings on a white ground.

I took one specimen on the forest-clad hills between Kangaroo Valley and Moss Vale, New South Wales, in January ; and subsequently six others in dense scrub near Rosewood, Queensland, in September.

12. *Cap. plathanana, n. sp.*

♂ ♀.  $5\frac{1}{2}$ "-6". Head, palpi, and antennæ blackish-fuscous. Thorax pale yellow, anterior margin narrowly blackish-fuscous. Abdomen whitish-ochreous, anal tuft of male whitish-yellow, of female blackish-fuscous. Forewings moderate, costa gently arched, hardly bent, hindmargin rounded ; pale golden-yellow, with two direct transverse blackish-fuscous fasciæ suffused with bluish-grey-metallic scales except on their margins ; first at one-third, nearly straight, rather narrow, irregularly margined, sending a slender dark fuscous streak along extreme costal edge to base ; second much broader, parallel, from about four-fifths of costa to anal angle, somewhat contracted in middle, broadest on costa : cilia ochreous-yellow, beneath the second fascia blackish. Hindwings pale grey ; cilia whitish, with a grey basal line.

This peculiarly marked and beautiful species differs widely from all others in the yellow ground-colour, and the position of the two direct parallel fasciæ.

I took two specimens (male and female) in the bush near Sydney in December and February ; and have seen a third from the same locality.



12. ACROCEUTHES, *n. g.*

Thorax smooth or crested. Antennæ short, in male thickened, ciliated. Palpi moderate, straight, porrected, in male clothed above with very long dense erect spreading hairs, in female with dense rather appressed scales, terminal joint almost concealed. Abdomen in male with very large tufted anal valves. Forewings short, broadly oblong, costa in male with a short imperfect basal fold, arched before middle, apex nearly rectangular, hindmargin obliquely rounded. Hindwings rounded, elongate, hardly as broad as forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Distinguished from its nearest allies by the imperfect costal fold, the erect spreading tuft of hairs on the upper side of the palpi, and the large tufted abdominal valves of the male; the female is hardly distinguishable from *Capua*. I have included *A. oxygrammana* in the genus on account of the evident close alliance between the female and the corresponding sex of *A. metaxanthana*; but the male is still unknown to me.

*A. metaxanthana* may be known from *A. oxygrammana* by the pale yellow hindwings.

1. *Acroc. metaxanthana*, *Walk.*

(*Cacœcia metaxanthana*, Walk., Brit. Mus. Cat. 315; *Sciaphila projectana*, *ibid.* 352; *Carpocapsa trajectana*, *ibid.* 992.)

♂. 5½"-6". Head dark grey-brown, face white. Palpi white with long fine erect white hairs above. Antennæ greyish-ochreous. Thorax brownish-ochreous, dark fuscous on back. Abdomen dark ochreous-grey, anal tuft whitish-ochreous. Legs white, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings short, broad, costa rather strongly bent before middle, hindmargin obliquely rounded; basal third within a suffused outwardly angulated line white, more or less broadly

strigulated towards inner margin with brownish-ochreous and dark fuscous, and with a stronger oblique dark fuscous streak from inner margin at one-fifth, reaching half across wing; a blackish line along basal third of costa, ending posteriorly in a black spot; remainder of wing ochreous-brown, irregularly mixed with dark fuscous and blackish, and with a few whitish scales; costa strigulated with blackish-fuscous; a very oblique silvery-whitish indistinct line from beyond middle of costa in an irregular curve to hindmargin below middle, thence continued to anal angle; another similar line from costa a little before apex to hindmargin below apex: cilia brownish-ochreous, towards anal angle whitish-ochreous, irregularly barred with dark fuscous. Hindwings whitish-yellow, hindmargin suffused or spotted with grey; cilia whitish-grey, with a darker grey basal line.

♀.  $6\frac{1}{4}''$ - $7\frac{1}{2}''$ . Head, palpi, antennæ, thorax, and abdomen ochreous-brown. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings broad, costa rather strongly arched, becoming straight towards apex, hindmargin more oblique than in male; light ochreous-brown, costa and inner margin strigulated with dark fuscous; a very large dark fuscous or reddish-fuscous rounded-triangular blotch, mixed with blackish, on posterior half of inner margin, its apex nearly reaching costa beyond middle, its anterior edge nearly straight, its posterior edge rounded, ending on hindmargin just above anal angle; a fuscous obliquely curved streak from three-fourths of costa to middle of inner margin, irregularly margined on both sides with silvery-metallic scales; apex dark fuscous: cilia dark reddish-fuscous or blackish-fuscous. Hindwings pale yellow, spotted with grey towards margins, apex and hindmargin grey; cilia grey.

The sexes are at first sight very different in appearance, but the markings are really nearly identical in position, the differences being chiefly in intensity of colouring. Both sexes may be separated from *A. oxygrammana* by the pale yellow hindwings.

Taken not uncommonly at rest on fences in Sydney, from September to February; it also occurs at Waratah on the Hunter River, and at Brisbane.

Walker's descriptions are in this case tolerably accurate; the type of *Carpocapsa trajectana* is lost, but the description is certainly referable to this species.

## 2. *Acroc. oxygrammana*, n. sp.

♀.  $7\frac{1}{4}$ ". Head, palpi, and thorax ochreous-brown; thorax with strong crest. Antennæ ochreous-fuscous. Abdomen ochreous-grey, darker posteriorly, anal tuft broad, truncate. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings posteriorly dilated, rather broad, costa strongly arched, becoming straight towards apex, hindmargin nearly straight, very oblique; whitish, with clearly-defined rather dark ochreous-grey markings; costa and inner margin obscurely strigulated with darker fuscous-grey; basal patch dark ochreous-grey, its outer edge starting from one-third of costa, thence curved gently and obliquely inwards to one-fifth of inner margin; central fascia broad, oblique, starting from middle of costa and gradually dilated, its anterior edge running to inner margin at two-thirds, its posterior edge to hindmargin at one-third above anal angle, enclosing a small elongate transverse suffused whitish spot before anal angle; the space between basal patch and central fascia obscurely strigulated with ochreous-grey, most broadly on inner margin; a dark fuscous sharply-defined triangular patch on apical third of costa, its anterior margin parallel to edge of central fascia and only separated by a narrow whitish line; within the patch are three short white strigulæ in the costal cilia; the space between costal patch and hindmargin whitish, irregularly clouded with ochreous-grey: cilia ochreous-white, with a dark fuscous line towards base. Hindwings fuscous-grey; cilia ochreous-white, with the basal half fuscous-grey.

The male being unknown, it is uncertain whether this species is correctly referred to its present position; but in general characters it strongly resembles the female of the preceding species, though the thoracic crest is a discordant point.

Mr. G. H. Raynor took three specimens near Hobartown and Evandale, Tasmania, in January.

### 13. ASTHENOPTYCHA. *n. g.*

Thorax with erect crest. Antennæ in male rather thickened, somewhat dentate, moderately ciliated. Palpi moderate, arched upwards and appressed to face (especially in male), thickly rough-scaled beneath on second joint, terminal joint erect, distinct. Forewings rather short, subtriangular, costa arched, in male with very short narrow fold at base, hindmargin obliquely rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Distinguished from the group of *Capua*, to which it is allied, by the upward-arched palpi, in conjunction with the very small and imperfect costal fold. The species are dull-coloured insects, with a general resemblance to *Capua*.

*A. conjunctana* may be separated from *A. hemicyptana* by the clearly-defined white markings.

#### 1. *Asth. hemicyptana*, *n. sp.*

♂ ♀. 6"-7". Head, palpi, antennæ, and thorax dark fuscous. Abdomen greyish-ochreous. Legs whitish. anterior tibiæ and tarsi strongly banded with dark fuscous, middle pair suffused. Forewings moderately broad, dilated, costa rather strongly arched, hindmargin obliquely rounded; ochreous-whitish, coarsely irrorated with greyish-ochreous; costa and inner margin shortly strigulated with dark fuscous; basal patch blackish-fuscous, its outer edge angulated in middle; central fascia broad, oblique, its

base resting on the whole posterior half of inner margin, dark fuscous mixed with blackish, its anterior edge concavely angulated, its posterior edge straight, so that it appears to dilate strongly from the middle downwards; a narrow dark fuscous black-margined fascia from two-thirds of costa (where it encloses a small whitish costal spot) to hindmargin above anal angle, attenuated beneath; a blackish elongate streak from apex along upper half of hindmargin: cilia greyish-ochreous, mixed with whitish towards anal angle, suffused with blackish towards apex, along hindmargin obscurely barred with blackish. Hindwings in male pale fuscous-grey, in female rather darker, cilia pale grey with a darker basal line.

An obscure-looking species, readily distinguished from the following by the absence of the clear white markings; it is also rather broader-winged, and has nearly the form of *Cap. sordidatana*.

I have as yet only met with this species in Queensland; I took seven specimens at Brisbane, Rosewood, and Toowoomba, (in the latter case at an elevation of 2,000 feet,) in September, amongst subtropical thickets.

## 2. *Asth. conjunctana*, Walk.

(*Sciaphila conjunctana*, Walk., Brit. Mus. Cat. 348.)

♂.  $5\frac{1}{2}$ "-6". Head, palpi, and thorax greyish-fuscous mixed with dark fuscous, thorax with a pale spot on back. Antennæ greyish-fuscous. Abdomen dark grey. Legs whitish, suffused above with dark fuscous, all tarsi dark fuscous with white rings at apex of joints. Forewings dilated, costa slightly arched, hindmargin oblique; light greyish-fuscous, mixed with paler scales towards anal angle, irrorated with dark fuscous; costa and inner margin coarsely marked with blackish; a distinct narrow whitish transverse rather oblique fascia from one-third of costa to inner margin before middle, angulated outwards above middle. suffusedly margined with brownish-ochreous mixed with black in middle; a short transverse white streak from costa at two-

thirds, abruptly terminated before reaching middle, slightly oblique, margined by two suffused brownish-ochreous lines mixed with black on disc and continued to inner margin before anal angle; two short white strigulae on costa before apex, from between which a suffused brownish-ochreous line runs to meet that preceding it in middle of disc; a brownish-ochreous line along hindmargin, mixed with black: cilia whitish-grey or whitish, above apex blackish-grey, beneath it barred indistinctly with dark grey, sometimes suffused with brownish-grey. Hindwings grey, darker at apex; cilia whitish-grey, with a dark grey line near base.

This is a neatly marked insect; the short clear white streak from the costa beyond middle is a noticeable characteristic.

Mr. G. H. Raynor took this species commonly (but without noticing the female) near Deloraine in Tasmania, in January; Walker's type is from the same island.

#### 14. ANATROPIA, *n. g.*

Thorax strongly crested. Antennae in male biserrated, ciliated. Palpi moderate, arched upwards, tolerably appressed to face, second joint rough-scaled beneath. Forewings subtriangular, costa in male simple, regularly arched, hindmargin oblique. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 stalked.

This genus is nearly allied to the preceding *Asthenoptycha*, from which it only differs in the entire absence of the costal fold. From the other allied genera it is removed by the upward-arched palpi, the apex of which rises as high as the crown.

The single representative has nearly the facies of *Asth. hemi-cryptana*.

1. *Anatr. craterana*, n. sp.

♂. 6". Head, palpi, and thorax dark fuscous mixed with ochreous. Antennæ ochreous-fuscous. Abdomen dark ochreous-grey, anal tuft whitish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings dilated, costa evenly arched; whitish, with an irregular transverse greyish suffusion between the dark fuscous markings; costa and inner margin coarsely strigulated with black; basal patch dark fuscous mixed with black, its outer edge running from one-fifth of costa to one-fourth of inner margin, strongly angulated outwards in middle; central fascia broad, oblique, dark fuscous mixed with black, starting from costa somewhat before middle, very strongly dilated below middle, its posterior edge being abruptly bent outwards, its base resting on whole posterior half of inner margin; between basal patch and central fascia are two or three small irregular dark fuscous spots; within the base of central fascia is a transverse pale mark before anal angle; a fuscous triangular patch on apical third of costa, containing two short whitish costal strigulæ, its apex blackish and produced narrowly to meet hindmargin; cilia brownish-grey, with a blackish suffused line towards base, extremities ochreous-whitish. Hindwings fuscous-grey spotted with darker; cilia pale grey, darker towards base.

Apart from the absence of the costal fold, this species may be known from *Asth. hemicyptana* by its smaller size, and the different shape of the central fascia, of which the posterior edge is strongly bent outwards in the middle, whilst in *Asth. hemicyptana* it is straight.

One specimen taken at light at Mount Victoria in the Blue Mountains, New South Wales, 3,300 feet above the sea, in January.

15. *ANISOGONA*, n. g.

Thorax smooth. Antennæ in male slightly thickened, finely ciliated. Palpi rather short, somewhat ascending, slender, with

smooth appressed scales, terminal joint distinct. Abdomen of male with very large tufted anal valves. Forewings broad, unevenly dilated, costa in male simple, arched near base, in female more or less concave beyond middle, apex in male obtuse, in female produced, hindmargin hardly oblique, rounded beneath. Hindwings rounded-trapezoidal, hardly broader than forewings, costa convex, apex in female very bluntly rounded. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Allied to *Dichelia*; differing by the short smoothly-scaled palpi, and especially by the large tufted abdominal valves of the male, and the peculiar distorted form of the wings in the female. In form and in the difference between the sexes, the species approach *Cacæcia*, between which genus and *Dichelia* they are in some sense intermediate. The venation of the genus is however identical with that of *Dichelia*.

The sexes of the two species may be distinguished as follows :

A. Forewings nearly rectangular at apex.

- |  |                    |
|--|--------------------|
| 1. Forewings suffused with dark fuscous towards base . . . . . | 1. simana, male.   |
| 2. Forewings not suffused . . . . .                            | 2. similana, male. |

B. Apex of forewings produced.

- |   |                      |
|---|----------------------|
| 1. Hindwings grey . . . . .               | 1. simana, female.   |
| 2. Hindwings posteriorly yellow . . . . . | 2. similana, female. |

1. Anis. simana, *n. sp.*

♂  $7\frac{1}{2}$ " , ♀  $8\frac{1}{2}$ ". Head, antennæ, and thorax whitish-grey; palpi pale greyish-fuscous, apex darker. Abdomen pale ochreous grey. Legs ochreous-whitish, anterior and middle tibiæ and tarsi banded with dark fuscous above. Forewings broad, oblong; in male costa strongly arched towards base, apex nearly rectangular, hindmargin perpendicular; in female costa very strongly arched near base, posteriorly sinuate, apex strongly



produced, hindmargin sharply excavated beneath apex, strongly bowed outwards below middle; whitish-grey, with a few irregular blackish-fuscous transverse strigulæ, basal portion in male suffused with dark fuscous; costa and inner margin finely strigulated with dark fuscous; outer edge of basal patch indicated by an irregular blackish line from one-fifth of costa to before one-third of inner margin; a small grey-fuscous spot on costa at one-third; a large subquadrate dark grey-fuscous blotch on posterior half of inner margin, anteriorly and posteriorly somewhat rounded and blackish margined, above straight but less distinct; a dark grey-fuscous black-margined triangular blotch on costa at two-thirds, its apex slenderly connected with posterior angle of blotch; a small dark fuscous costal spot before apex; a dark grey-fuscous black-margined evenly broad streak along hindmargin from apex nearly to anal angle; cilia whitish-grey. Hindwings light fuscous-grey, spotted with darker, and becoming darker posteriorly; cilia whitish-grey, dark grey round apex, and with a dark grey basal line.

Probably the species may be subject to variation analogous to that of *A. similana*, for which allowance should be made. The male is larger and broader-winged than *A. similana*, without the ochreous-brown ground-colour of that species, and also strongly suffused with dark fuscous towards base; the female is also rather larger than the corresponding sex in *A. similana*, with the peculiarities of form all exaggerated, and especially the hindmargin deeply excavated beneath the apex, whilst the hindwings are entirely without any yellow colouring.

Mr. G. H. Raynor took three specimens (one male and two females) in a garden at Waratah on the Hunter River, New South Wales, in September.

2. *Anis. similana*, *Walk.*

(*Teras similana*, *Walk.*, *Brit. Mus. Cat.* 300; *Pandemis mediana*, *ibid.* 311).

♂  $5\frac{1}{2}$ - $6\frac{1}{2}$ " , ♀  $7\frac{1}{2}$ "-8". Head, palpi, antennæ, and thorax in male ochreous-brown, in female whitish-grey. Abdomen light ochreous-grey, anal tuft of male whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings broad, oblong; in male, costa rather strongly arched towards base, apex nearly rectangular, hindmargin somewhat oblique; in female costa rather strongly arched near base, somewhat sinuate posteriorly, apex rather produced, hindmargin somewhat sinuate below apex, slightly bent outwards below middle; in male ochreous-brown strigulated with darker, in female whitish-grey faintly tinged with brown, sometimes strongly suffused with brown in irregular cloudy blotches towards inner margin; outer edge of basal patch faintly indicated in female, running from one-fifth of costa to one-third of inner margin; a small cloudy fuscous spot on costa at one-third, in male obsolete; a small dark fuscous triangular blotch on costa at one-third, in male obsolete; a small dark fuscous triangular blotch on costa at two-thirds, in male often rather obscure, in female blackish and much more distinct; sometimes there is a large dark fuscous blotch on posterior half of inner margin, uniting with costal triangular blotch, but generally this is obsolete or quite imperceptible: cilia in male ochreous-brown, paler towards anal angle, in female dark fuscous, becoming whitish at anal angle. Hindwings in male fuscous-grey spotted with darker, cilia light grey with a darker basal line; in female whitish-yellow, becoming deeper yellow at apex and pale grey along inner margin, and generally spotted with pale grey; cilia whitish with a dark grey basal line.

A very variable species, the markings differing much in size, position, and intensity.

Generally distributed and very common in gardens, as well as in dry bush; it occurs at Sydney, Parramatta, Morpeth, and Bulli, New South Wales; at Toowoomba in Queensland; and

round Melbourne; in August and October, and from January to March, apparently in a succession of generations.

The type of *Pandemis mediana*, Walk., is from Tasmania; it is a female, larger and more brightly coloured than usual, but apparently not essentially different.

#### 16. DICHELIA, Gn.

Thorax smooth (or rarely crested). Antennæ in male thickened, more or less serrate, ciliated. Palpi rather short, porrected, densely rough-scaled above and generally also beneath, the hairs often forming a rough tuft beneath, in which the terminal joint is nearly concealed. Forewings elongate-oblong or rather short, costa in male simple, evenly arched towards base, hindmargin oblique, rounded. Hindwings rather elongate, hardly or not broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point or short-stalked, 5 approximated to 4 at base, 6 and 7 stalked.

This genus forms the type of a group distinguished by veins 3 and 4 of hindwings rising from the same point, 7 and 8 of forewings rising from a common stalk, and the absence of a costal fold in male; the latter character separating it from *Capua*, to which it is otherwise intimately allied. The distinguishing points of *Anatropia* and *Anisogona*, its nearest Australian allies, have been already pointed out. Other genera of the group are *Oenectra*, Gn., (Europe and America,) separated by the very long palpi; *Amphisa*, Curt., (Europe,) by the pectinated antennæ of male; *Amorbia*, Clem., (North America,) by the coincidence of veins 7 and 8 of forewings in male; *Cenopsis*, Z., (North America), by the deeply excavated forehead of male.

The species are generally small and rather neatly marked. There are eight European species, and at least two have been described from North America; other North American species have been referred to this genus, as well as one (probably correctly)

from West Africa, but in the case of these latter the generic identification is not yet assured. I have ten Australian species and one from New Zealand; and there are two Australian species in the British Museum which appear to belong to the genus and are included below. These may be arranged as follows:

- I. Forewings with white or pale triangular costal blotch.
- A. Anterior dark margin of blotch produced to anal angle .. .. . 2. *isoscelana*.
- B. Anterior dark margin not produced .. 1. *luciplagana*.
- II. Forewings without pale blotch.
- A. Forewings with numerous leaden-metallic spots .. .. . 13. *panoplana*.
- B. Forewings without metallic markings.
1. Forewings pale ochreous.
- a. Without markings .. .. . 12. *argillosana*.
- b. With dark fuscous markings.
- i. A dark fuscous streak along basal third of costa .. .. . 5. *humerana*.
- ii. Without costal streak.
- †. Central fascia entire.
- \*. Basal patch entire .. .. . 7. *clarana*.
- \*\* . Basal patch represented by a dorsal streak .. .. . 4. *fusciceps*.
- ††. Central fascia represented by a small costal spot .. .. . 6. *retractana*.
2. Forewings light reddish-fuscous, towards costa whitish .. .. . 3. *disputana*.
3. Forewings brownish.
- a. With a crescentic black discal streak 10. *atristrigana*.
- b. Without crescentic black discal streak.
- i. Forewings very elongate; basal patch absent .. .. . 9. *montivagana*.

ii. Forewings moderate ; basal patch indicated.

†. Hindwings of male yellowish,  
base black .. .. 8. solana.

††. Hindwings of male wholly  
dark grey .. .. 11. hyperetana.

1. Dich. *luciplagana*, *Walk.*

(*Pedisca luciplagana*, *Walk.*, *Brit. Mus. Cat.* 381).

♂ ♀.  $8\frac{1}{2}$ "-9". Head, palpi, antennæ, thorax, and abdomen whitish-ochreous. Legs ochreous-whitish, anterior tibiæ dark fuscous, anterior and middle tarsi dark fuscous towards base of joints. Forewings elongate, moderately broad, posteriorly dilated, costa arched at base, apex rather produced, hindmargin sinuate, oblique ; whitish-ochreous, finely strigulated and sometimes suffused with darker ; inner margin narrowly suffused with dark fuscous ; a moderately broad dark fuscous or dark reddish-fuscous outwardly oblique streak from costa at one-third, and a similar inwardly oblique streak from costa at two-thirds, uniting on disc below middle so as to form a triangle which encloses a semi-oval white or pale ochreous patch ; a cloudy suffused semi-oval fuscous blotch along hindmargin from apex to anal angle ; all these markings are sometimes very faint : cilia dark fuscous. Hindwings whitish, towards apex faintly tinged with ochreous, and strongly spotted with grey towards inner margin ; cilia whitish.

A distinct and peculiar species, apparently allied to *D. isoscelana* ; it varies much in depth of colouring.

I took three specimens (one male, and two females) amongst forest growth near Dunedin, New Zealand, in January. Walker's type is from Auckland.

2. Dich. *isoscelana*, *n. sp.*

♂.  $8$ "- $8\frac{1}{2}$ ". Head, palpi, and thorax brownish-ochreous ; thorax crested. Antennæ brownish-ochreous, annulated with dark

fuscous. Abdomen pale greyish-ochreous, anal tuft whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiae and tarsi suffused with dark fuscous except at apex of joints. Forewings rather broad, posteriorly dilated, costa moderately arched, hindmargin sinuate beneath apex; whitish-ochreous, obscurely suffused with reddish-ochreous, especially towards fold and above anal angle; an irregular cloudy dark reddish-fuscous spot above submedian fold near base; a straight narrow dark reddish-fuscous oblique fascia from before middle of costa to anal angle, its lower extremity suddenly attenuated and often obsolete; an inwardly oblique dark reddish-fuscous streak from costa at three-fourths, its extremity almost uniting with the oblique fascia in middle of wing but not quite reaching it, enclosing with it a white equilateral triangular space, the apex of which is shortly produced towards anal angle; a slender dark reddish-fuscous streak along hindmargin from apex nearly to anal angle: cilia reddish-ochreous, dark fuscous below anal angle, and with a dark fuscous line near base along hindmargin. Hindwings whitish-grey, indistinctly spotted with darker; cilia whitish with two grey lines.

♀.  $7\frac{1}{2}$ "-8". Head, etcætera, as in male; abdomen grey. Forewings rather less dilated than in male, costa less strongly arched; whitish-ochreous, coarsely irrorated with dark reddish-ochreous, costa and inner margin strongly strigulated with dark fuscous; an indistinct straight slender dark fuscous oblique fascia from one-sixth of costa to before middle of inner margin; a broader oblique dark fuscous fascia from before middle of costa to anal angle, rather dilated beneath, posterior margin rather irregular; a dark fuscous inwardly oblique triangular spot on costa at two-thirds, its apex almost meeting middle of central fascia, the space enclosed between them narrower than in male, white irrorated with dark reddish-ochreous, its apex shortly produced towards anal angle; an irregular dark fuscous spot on hindmargin below middle, connected with a dark fuscous streak from apex along upper half of hindmargin: cilia reddish-

ochreous, barred with dark fuscous. Hindwings pale grey, faintly spotted with darker; cilia whitish with two grey lines.

This handsome and distinctly coloured species differs much in the sexes, the female being more variegated and more darkly marked. The male makes some approximation to *D. luci plagana*, but the white costal patch is triangular instead of semi-oval, its anterior dark margin is produced as an oblique fascia towards anal angle, and the forewings are more triangular.

Tolerably common in dry bush above the Bulli Pass (2,000 feet), and at Blackheath in the Blue Mountains (3,600 feet), in October and November; it also occurs near Melbourne.

### 3. *Dich. disputana*, *Walk.*

(*Sciaphila disputana*, Walk., Brit. Mus. Cat. 349; rect. *disputatana*).

♂.  $4\frac{1}{4}$ "- $6\frac{1}{4}$ ". Head, palpi, antennæ, and thorax dark fuscous. Abdomen light ochreous-grey. Legs whitish, anterior tibiæ and tarsi dark fuscous, middle tarsi fuscous-grey towards base of joints. Forewings elongate, moderate, costa moderately arched, hindmargin hardly sinuate; light reddish-fuscous, becoming white towards costa; basal patch dark reddish-fuscous mixed with blackish, its posterior edge somewhat sinuate, running from one-fourth of costa to one-third of inner margin; central fascia moderately broad, oblique, dark reddish-fuscous margined with blackish, running from slightly before middle of costa to inner margin before anal angle, its anterior edge somewhat sinuate, posterior edge emitting a sharp tooth below middle obliquely upwards, generally connected with the succeeding fascia; a dark reddish-fuscous blackish-margined fascia from costa at two-thirds to hindmargin hardly above anal angle, broad on costa and attenuated gradually throughout, containing two small whitish spots on costa; hindmargin beneath apex mixed with dark fuscous: cilia ochreous-fuscous, tinged with reddish at base, and with a broad dark fuscous line, darkest at apex. Hindwings

whitish, tinged with reddish at apex and spotted with grey; cilia whitish with two grey lines.

Not closely allied to any other species; distinguished by its peculiar tint and by the additional oblique fascia beyond middle; the female is still unknown to me.

I have four males, taken in rocky bush near Sydney in September, and in February and March. Walker's type is also from Sydney; it is very poor in condition, but recognisable, which his description is not.

#### 4. *Dich. fusciceps*, *Walk.*

(*Conchylis fuscicepsana*, Walk., Brit. Mus. Cat. 364; *Conchylis cepsana*, *ibid.* 366; *Conchylis mundulana*, *ibid.* 368).

♂.  $4\frac{1}{2}''$ - $5\frac{1}{2}''$ , ♀.  $5\frac{1}{2}''$ - $6\frac{1}{2}''$ . Head dark smoky-fuscous, face and palpi whitish-ochreous. Antennæ dark fuscous. Thorax whitish-ochreous, anterior margin narrowly dark fuscous. Abdomen pale ochreous. Legs ochreous-whitish, anterior and middle tibiae and tarsi suffused with dark fuscous above. Forewings moderate, in female rather narrow, costa moderately arched, hindmargin obliquely rounded; whitish-ochreous, with sharply defined dark fuscous markings; a narrow transverse slightly oblique streak from inner margin near base, reaching half across wing; a slender oblique transverse fascia (in female somewhat broader) from costa before middle to inner margin at two-thirds, its lower extremity in male partially obsolete; a wedge-shaped inwardly oblique spot on costa before apex, larger in female and its extremity connected with a streak from hindmargin below middle which is obsolete in male; cilia whitish-ochreous, in female more ochreous-tinged. Hindwings in male whitish tinged with ochreous towards apex, cilia whitish; in female grey, rather darker posteriorly, cilia whitish grey with a darker line near base.

Distinguished from all except *D. humerana* by the slender sharply-marked dark fuscous markings on a clear whitish-ochre-



ous ground; from *D. humerana* it differs widely in the absence of the streak along costa, and in the presence of the oblique streak from inner margin near base. It is allied to *D. clarana*, but larger, broader-winged, and more clearly marked. The female has a somewhat deeper tinge than the male, and the markings are slightly broader.

Occurs rather plentifully near Sydney, Parramatta, and Bulli, New South Wales; and at Brisbane and Toowoomba, Queensland; in low scrub, from September to November, and in January and March. I have thought it necessary to alter Walker's barbarously formed name to an admissible shape.

5. *Dich.* (?) *humerana*, *Walk.*

(*Conchylis humerana*, Brit. Mus. Cat. 366.)

7". Thorax pale yellowish. Forewings in form nearly as *D. fusciceps*; pale clear ochreous-yellow; a dark fuscous line along costa from base to one-third; a slender dark fuscous rather oblique transverse streak from costa beyond middle nearly to inner margin before anal angle. Hindwings pale grey; cilia pale yellowish.

Walker's type, from which the above diagnosis is taken, has no head, and is otherwise in poor condition; I could not determine its generic characters, and can only conjecture that it may be referable to this genus; but it is such a distinct species that it could not well be passed over without notice. It may belong to a quite different group.

The locality is given as South Australia.

6. *Dich.* (?) *retractana*, *Walk.*

(*Dichelia retractana*, Walk., Brit. Mus. Cat. 322).

7". Head and thorax pale ochreous. Forewings moderately broad, costa rather strongly arched towards base; pale ochreous, somewhat brownish-tinged; two small dark fuscous costal spots,

first in middle, second before apex; an indistinct dark fuscous line near hindmargin. Hindwings pale grey.

The diagnosis is taken from Walker's type, which appears to be a true *Dichelia*, agreeing in neuration. I have thought it necessary to include the species here; but unless Walker was even more erratic than usual, it is difficult to understand how his description can have been taken from this specimen; the two costal spots are mentioned, but the first is said to be "near the base," and a central fascia and submarginal black points are added, which I failed to perceive. If I had been acquainted with the species in Australia, I should have rejected Walker's name on the ground of the inconsistency of the description with the type; but I am inclined to doubt whether the species is Australian at all.

#### 7. *Dich. clarana*, n. sp.

♂ ♀.  $4\frac{3}{4}$ "-5". Head, palpi, and antennæ dark smoky-fuscous. Thorax in male whitish-ochreous, anterior margin and a spot behind blackish-fuscous; in female suffused with dark fuscous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings elongate, rather narrow, costa arched near base, posteriorly nearly straight, hindmargin very obliquely rounded; whitish-ochreous, somewhat suffused with brownish-ochreous towards margins; costa and inner margin shortly strigulated with dark fuscous; basal patch in male blackish-fuscous, in female only indicated by a dark fuscous line representing its outer edge, extending from one-fifth of costa to one-fourth of inner margin, slightly angulated outwards in middle; central fascia rather narrow, oblique, dark fuscous edged with blackish, from middle of costa to anal angle, somewhat broader beneath, posterior margin with a short semi-circular excavation in middle; a broadly triangular dark fuscous spot on costa at three-fourths; a triangular dark fuscous spot on middle of hindmargin, connected with a slender dark fuscous

streak from apex along hindmargin: cilia whitish-ochreous, anal angle dark fuscous, indistinctly barred with dark fuscous towards base. Hindwings fuscous-grey; cilia whitish-grey, with a suffused dark grey line near base.

Distinguished amongst the pale ochreous species by its small size, narrow forewings, and the completely indicated basal patch. In general appearance it strongly resembles *Isoch. ranulana*, the markings being almost identical; the structural differences are the only safe means of separation, but this species is usually distinctly the larger.

Rather common near Sydney and Parramatta; also at Melbourne, and at Brighton in Tasmania; it occurs in February and March, in dry bush, but there may probably be also an earlier generation.

8. *Dich. solana*, *Walk.*

(*Teras solana*, *Walk.*, *Brit. Mus. Cat.* 300).

♂ ♀. 5"-6½". Head, palpi, antennæ, and thorax ochreous-brown. Abdomen brownish-grey. Legs ochreous-whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings oblong, moderately broad, costa arched towards base, hindmargin oblique; greyish-brown, in male more ochreous-tinged, and paler towards hindmargin, with dark fuscous markings, which are most distinct in male, in female not much darker than groundcolour; basal patch indistinct, its outer edge running from one-fourth of costa to one-fourth of inner margin, angulated outwards and in male blackish in middle, lower portion often obsolete; central fascia moderate, oblique, from before middle of costa to inner margin before anal angle, lower extremity in male obsolete, posterior edge with a short semicircular excavation in middle; a broadly triangular patch on costa at three-fourths; a cloudy elongate transverse mark before middle of hindmargin: cilia in male ochreous-fuscous, in female greyish-fuscous. Hind-

wings in male ochreous-yellowish, posteriorly suffusedly spotted with grey, and with a large irregular black blotch at base, cilia whitish, becoming grey at apex, with a darker grey basal line: in female light grey, darker posteriorly and spotted with darker, cilia light grey.

The male is immediately distinguished by the peculiarly coloured hindwings, which are unique in their way; the female is more difficult of definition, but may be known from *D. montivagana* by the broader forewings, more arched costa, and distinct basal patch; from *D. atristrigana* by the rather lighter colouring and the absence of the black markings; it approaches very nearly *D. hyperetana*, but is larger, rather broader-winged, with the costa slightly more arched, and the markings less obscure,

Common, and often taken at rest on fences near gardens; it occurs at Sydney, Bulli, and Parramatta, in New South Wales; at Melbourne; and at Brisbane and Rosewood, in Queensland; from August to October, and in December and April.

#### 9. *Dich. montivagana*, *n. sp.*

♂ ♀.  $6\frac{1}{2}$ "-9". Head, palpi, and thorax ochreous-brown. Antennæ pale ochreous, annulated with dark fuscous. Abdomen brownish-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings elongate, narrow, hardly at all dilated, costa gently arched at base, hindmargin very oblique; ochreous-brown, more or less irrorated with dark fuscous; costa and inner margin finely strigulated with dark fuscous; a small cloudy fuscous spot on inner margin before middle; an oblique rather narrow dark fuscous fascia from before middle of costa, reaching only half across wing, rarely obscurely produced to inner margin before anal angle, in which case its outer edge is semicircularly excavated in middle; an indistinct triangular dark fuscous patch on costa at three-fourths; an obscure triangular dark fuscous blotch on middle of hindmargin; all these markings vary in intensity and are often obsolete: cilia

ochreous, with a dark fuscous line near base. Hindwings pale grey spotted with darker; cilia pale grey, darker towards base.

Variable in size, as well as in intensity of colouring; but well characterised by the remarkably elongate and narrow forewings, with costa hardly arched, and the ochreous-brown tint of the ground-colour is also a constant point of distinction.

Taken commonly at Blackheath in the Blue Mountains (3,600 feet), and also occurs at Nowra, on the Shoalhaven River, and occasionally near Sydney; it is plentiful near Melbourne; in low heathy scrub, from January to March.

10. *Dich. atristrigana*, *n. sp.*

♂ ♀.  $5\frac{1}{2}$ "- $6\frac{1}{2}$ ". Head, palpi, antennæ, and thorax dark fuscous. Abdomen fuscous-grey. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings moderately elongate, somewhat dilated, costa moderately arched, hindmargin very oblique; greyish-fuscous or dark fuscous; costa and inner margin coarsely strigulated with black; an oblique black streak from one-fourth of inner margin, reaching half across wing; a short black longitudinal streak in middle of disc, both extremities generally somewhat turned upwards so as to appear somewhat crescentic in form, sometimes connected with oblique dark shades from costa; a blackish elongate oblique mark above anal angle: a slender black streak along hindmargin from apex: cilia light ochreous-brown, paler towards anal angle, indistinctly barred with blackish, and with a black line near base along hindmargin. Hindwings light grey spotted with darker; cilia pale grey with a darker line near base.

Nearest to *D. solana* in form of wing, but costa more evenly arched, and hindmargin more oblique; distinguished by the dark colouring and black marks, especially the longitudinal discal streak, which is however variable.

I took four specimens flying in the evening amongst open scrub near Parramatta, New South Wales, in March.

11. *Dich. hyperetana*, *n. sp.*

♂.  $5\frac{1}{2}$ ". Head, palpi, and thorax greyish-fuscous mixed with darker. Antennæ grey-whitish, annulated with dark fuscous. Abdomen dark fuscous-grey. Legs ochreous-whitish, anterior and middle tibiæ suffused with dark fuscous, all tarsi dark fuscous with whitish rings at apex of joints. Forewings rather elongate, moderate, somewhat dilated, costa moderately arched at base, hindmargin very oblique; greyish-fuscous, with irregular scattered transverse dark fuscous strigulæ; costa and inner margin coarsely strigulated with dark fuscous; outer edge of basal patch indicated by a transverse dark fuscous line from one-fifth of costa to one-fourth of inner margin, angulated outwards in middle; central fascia moderate, oblique, dark fuscous, from middle of costa to inner margin before anal angle, anterior edge slightly sinuate, distinct, posterior edge with a short deep semicircular excavation in middle; an obscure dark fuscous triangular patch on costa at three-fourths; an elongate transverse dark fuscous mark near hindmargin above anal angle; hindmargin dark fuscous beneath apex: cilia whitish-grey, with a broad blackish-fuscous partially interrupted line near base. Hindwings fuscous-grey; cilia dark grey, towards extremities whitish-grey.

An obscure-looking species, resembling *D. solana*, but smaller, duller and more obscure, separated by the uniform grey hindwings of the male.

Mr. G. H. Raynor took two specimens of this easily overlooked species (both males), one at Deloraine in Tasmania, the other at Warragul in Gippsland, Victoria, both in December.

12. *Dich. argillosana*, *n. sp.*

♂.  $7\frac{1}{2}$ ". Head, palpi, and thorax light brownish-ochreous. Antennæ ochreous-whitish, broadly annulated with dark fuscous. Abdomen dark fuscous-grey. Legs whitish-ochreous, anterior and middle tibiæ suffused with dark fuscous above, all tarsi dark fuscous with pale rings at apex of joints. Forewings elongate,

rather narrow, slightly dilated, costa gently arched at base, hindmargin very oblique; light yellowish-ochreous, with a few scattered fuscous scales near inner and hindmargins, and a dark fuscous dot on disc at three-fourths: cilia pale yellowish-ochreous. Hindwings fuscous-grey, posteriorly darker; cilia ochreous-whitish, with an indistinct dark grey line near base.

In form of wing approaching *D. montivagana*, but hardly as elongate; distinguished by the unicolorous light ochreous forewings, contrasting with the rather dark grey hindwings.

I have only one male, taken by Mr. G. H. Raynor near Melbourne.

13. *Dich. panoplana*, *n. sp.*

♂ ♀.  $4\frac{1}{2}$ "- $6\frac{1}{2}$ ". Head, palpi, and thorax brownish-ochreous mixed with black, thorax black on back. Antennæ ochreous-white, sharply annulated with black. Abdomen dark fuscous. Legs pale ochreous, anterior and middle tibiæ dark fuscous, all tarsi dark fuscous with ochreous-white rings at apex of joints. Forewings elongate, rather narrow, posteriorly somewhat contracted, costa gently arched towards base, hindmargin very obliquely rounded; pale dull ochreous, more or less mixed with dark reddish-brown in irregular spots and streaks, which coalesce so as to form an oblique fascia from before middle of costa to inner margin at two-thirds, and an irregular patch on costa at three-fourths; whole surface of wing irregularly strewn with numerous bright leaden-metallic spots, tending to form six or eight curved transverse lines; hindmargin with a row of similar spots: cilia light ochreous towards apex, dark grey towards anal angle. Hindwings dark fuscous; cilia dark grey with a blackish line near base, extremities whitish towards apex.

This species appears to vary greatly in size, and in the character and position of the leaden-metallic markings; but is always recognisable by the presence of these markings, and the slight posterior narrowing of the forewings.

Mr. G. H. Raynor took the species commonly on the dry bush-clad hills round Murrurundi, in October; and I have also a specimen taken in a heathy swamp near Appin, New South Wales, which appears to belong to the same species.

17. *CRYPTOPTILA*, *n. g.*

Thorax smooth. Antennæ in male ?— Palpi moderate, porrected, second joint triangularly clothed with appressed scales, terminal joint short, distinct. Forewings long, dilated, costa in male ?—regularly arched, apex obtuse-angled, hind-margin rounded, bowed outwards. Hindwings broader than forewings, rounded, costa convex, surface with a large costal tuft of raised scales beyond middle. Forewings with veins 7 and 8 separate, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Nearly allied to *Tortrix*, from which, as well as all other genera of the family, it is distinguished by the large costal tuft of scales on the hindwings; superficially it has more the appearance of some of the larger species of *Cacæcia*.

1. *Crypt. immersana*, *Walk.*

(*Teras immersana*, Walk., Brit. Mus. Cat. 302).

♀. 14"-15". Head, palpi, and antennæ whitish-ochreous, sometimes suffused with brownish. Thorax whitish-ochreous, with a fuscous spot on back, sometimes suffused with brownish. Abdomen whitish-ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings broadly oblong, costa evenly and rather strongly arched towards base, hindmargin rather strongly bowed outwards below middle; whitish-ochreous, sometimes suffused with brownish; costa and inner margin very shortly and finely strigulated with dark fuscous; a short very oblique narrow fuscous dark-margined streak from costa at one-fourth, reaching one-third across wing; a similar



fuscous irregularly dark-margined streak from before middle of costa very obliquely to beneath apex of wing, where it is more or less distinctly connected with the apex of an irregular three-branched fuscous dark-margined mark near hindmargin somewhat above middle; four small semi-oval dark fuscous spots on apical half of costa; the narrow space between these and the oblique costal streak is suffused with brownish; a narrow irregularly sinuous fuscous dark-margined streak from inner margin near base very obliquely outwards to middle of wing, semicircularly concave below middle, its apex dilated into an irregular spot; below this streak and the three-branched spot the inner and hindmargins are suffused with brownish; an irregular fuscous dark-margined spot above anal angle; a fuscous dark-margined streak along hindmargin: cilia greyish-brown or ochreous-brown, with an indistinct dark grey interrupted line. Hindwings light fuscous-grey, more whitish towards base, thickly spotted with darker grey, costal tuft ochreous-fuscous; cilia whitish-grey, with a dark grey line near base.

The largest Australian species of *Tortricina*, and peculiarly marked with a rather fantastic irregularity.

I took six specimens at light in Sydney during November, December, and February; and also one amongst thick scrub at Rosewood, Queensland, in September. (Vid. addenda).

#### 18. CACOECIA, Hb.

Thorax smooth. Antennæ in male thickened or dentate, strongly ciliated. Palpi moderately long, porrected, second joint triangularly scaled, terminal joint distinct. Forewings rather broad, costa in male with a more or less perfect fold towards base, arched before middle, in female more abruptly arched, often rather sinuate, apex sometimes produced, hindmargin sinuate or rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to

hindmargin. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 separate.

This genus only differs from *Tortrix* by the presence of a costal fold in the male; in conjunction with *Tortrix*, it constitutes the type of the principal and most universally distributed group of the family. In this group the only other genus of which the male possesses a costal fold is *Ptycholoma*, Stph., characterised by the very short palpi. *Loxotania*, HS., is generally maintained by European writers as a distinct genus from *Cacæcia*, the separation being based on the character of the costal fold of the male, which is defined as being strong and membranous in *Cacæcia* and imperfect and hairy in *Loxotania*, but I do not think myself that this distinction is worthy of being maintained; the form of the fold differs so much in different species, that every gradation can be found between a very slight upward curving and roughening of the extreme costal edge near base, and a broad strong membranous fold extending over basal half of costa. I have consequently included all these species in *Cacæcia*, employing the shape of the fold only as a means of grouping them into natural sections. The length of the palpi also varies considerably; all the New Zealand species have elongate palpi, but are otherwise not generically separable. *Idiographis*, Ld., which has elongate palpi and is referred by Heinemann to this group, has been shown to belong in reality to the *Conchylidæ*.

The species are mostly rather large, with ample wings but dull colouring. The genus contains about twenty European species, and is represented, probably to a considerable extent, in North and South America; it is probably cosmopolitan in distribution. I am acquainted with twelve Australian species, and eleven from New Zealand; in the latter country the genus appears to be represented by an unduly large proportion of species, in comparison with the entire fauna. The following is a tabulation of those described:

I. Costal fold of male extending to base of wing.

## A. Palpi long.

1. Hindmargin of forewings not sinuate . . 16. *miserana*.
2. Hindmargin of forewings sinuate  
beneath apex.
  - a. Forewings whitish.
    - i. Central fascia obsolete below middle . . 9. *charactana*.
    - ii. Central fascia distinct . . . . 11. *amplexana*.
  - b. Forewings whitish-ochreous, with  
two small dark costal spots . . 10. *flavescens*.
  - c. Forewings ochreous or grey.
    - i. Markings not darker, indistinctly  
outlined.
      - \*. A whitish spot in disc at one-  
third from base . . . . 6. *biguttana*.
      - \*\* . No whitish spot . . . . 7. *excessana*.
    - ii. Markings distinctly darker than  
groundcolour.
      - \*. A sinuate black streak in disc  
towards base . . . . 3. *jactatana*.
      - \*\* . No black discal streak.
        - †. A blackish oblique streak from  
inner margin near base . . 2. *spurcatana*.
      - ††. No blackish dorsal streak.
        - ‡. A narrow, oblique, dark,  
streak from costa before  
middle . . . . 8. *obliquana*.
        - ††. A broad similar streak,  
confluent with a spot  
beyond middle . . . . 4. *oblongana*.
        - †††. A sharply-defined large  
dark triangular costal  
blotch . . . . 5. *cuneigera*.
  - d. Forewings unicolorous dark brassy-  
fuscous . . . . 12. *ænea*.

## B. Palpi moderate or rather short.

1. Hindmargin of forewings strongly bowed outwards below middle .. 1. *australana*.
2. Hindmargin of forewings obliquely rounded.
  - a. Central fascia abbreviated, not reaching inner margin.
    - i. Hindwings light grey; edge of basal patch angulated .. ..13. *polygraphana*.
    - ii. Hindwings dark grey; edge of basal patch nearly straight ..14. *pyrosemana*.
  - b. Central fascia entire .. ..15. *lythrodana*.

## II. Costal fold of male not continued to base, short or rudimentary.

- A. Forewings unicolorous light grey ..21. *liquidana*.
- B. Forewings white with dark fuscous markings.
  1. Hindwings grey .. ..22. *tessulatana*.
  2. Hindwings yellowish .. ..23. *desmotana*.
- C. Forewings ochreous or fuscous.
  1. Hindmargin distinctly sinuate beneath apex .. ..17. *jugicolana*.
  2. Hindmargin obliquely rounded.
    - a. Head and thorax greyish-brown ..20. *mnemosynana*.
    - b. Head and thorax whitish-ochreous or brownish-ochreous.
      - i. Central fascia moderately broad on costa .. ..18. *responsana*.
      - ii. Central fascia slender, attenuated on costa .. ..19. *postvittana*.

1. *Cac. australana*, *Lewin*.

(*Tortrix australana*, *Lewin*, *Insects of N.S. Wales*, 11, plate 17)

♂. 12". Head, palpi, and antennæ whitish-ochreous. Thorax whitish-ochreous, shoulders brownish, on back mixed with dark fuscous. Abdomen greyish-ochreous. Legs whitish-ochreous, anterior and middle pair suffused above with dark fuscous, posterior tarsi dark fuscous at base of joints. Forewings broad, dilated, costa much rounded, slightly indented at apex of fold, which is large, hindmargin hardly at all sinuate, strongly bowed outwards below middle; grey-whitish, suffused towards margins with pale grey-fuscous, and irrorated with fine transverse dark fuscous strigulæ; costa and inner margin strigulated with dark fuscous; fold dark greyish-brown, with long pale ochreous hairs; a slender dark fuscous black-margined rather oblique streak from inner margin at one-fifth, reaching half across wing; between this streak and base the groundcolour is clear pale ochreous, emitting a narrow suffused pale ochreous streak beneath the costal fold to its extremity; a dark fuscous fascia-like spot on middle of costa, rather oblique, reaching half across wing, connected by a slender dark fuscous blackish-margined line with a narrow sharply triangular dark fuscous spot on middle of inner margin; the ground-colour between the pale ochreous basal patch and a straight line from middle of costa to anal angle suffused with greyish-fuscous mixed with ochreous, most deeply along inner margin; three small dark fuscous spots on costa between middle and apex, irregularly connected with two sinuate dark fuscous blackish-margined partially interrupted transverse streaks directed towards anal angle, but confluent and obsolete below middle; a suffused ochreous spot beneath costa at three-fourths; a narrow fuscous black-margined streak along hindmargin: cilia grey-whitish mixed with ochreous, with two fuscous-grey lines, and indistinctly barred with dark grey. Hindwings light fuscous-grey strigulated with darker; cilia whitish-grey with two dark grey lines.

A large and rather elegant species, differing from all other Australian species known to me in the strongly-bowed hindmargin

of the forewings; it is not closely allied to any other. Lewin's figure is a tolerable representation of my specimens, and is, I think, undoubtedly identifiable with them.

The larva is represented by Lewin as blackish-green, with the spots pale yellow, and is stated to feed on *Embothrium speciosissimum* (*Proteaceæ*), living gregariously in webs until nearly full-grown, in swampy places near Sydney. I have not been able to verify these facts; the food-plant given does not now grow within several miles of Sydney, and the original localities have been probably built over.

I took two males on gas-lamps near Sydney, in December; and have seen another taken at Parramatta in October. (Vid. addenda.)

## 2. *Cac. spurcatana*, *Walk.*

(*Teras spurcatana*, Walk., Brit. Mus. Cat. 305; ? *Teras congestana*, ibid. 308; *Sciaphila transtrigana*, ibid. 354; *Sciaphila turbulentana*, ibid. 355; *Grapholitha ropeana*, Feld., Reise der Novara, Pl. cxxxvii., 45.

♂. 8"-8½". Head, palpi, antennæ, and thorax whitish-ochreous or brownish-ochreous; palpi rather long. Abdomen whitish-ochreous or ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderately broad, not dilated posteriorly, costa gently arched, somewhat bent near middle, fold reaching from base to middle, hindmargin slightly sinuate, hardly oblique, rounded beneath; whitish-ochreous, more or less entirely suffused with pale brownish-ochreous, and irregularly strewn with short dark fuscous strigulæ; costa and inner margin shortly strigulated with blackish; a strong blackish-fuscous rather oblique straight streak from inner margin before one-fourth, reaching two-thirds across wing, nearly meeting the costal fold; an irregular blackish-fuscous spot on middle of costa, reaching half across wing, narrow on

costa and irregularly dilated beneath; three small cloudy dark fuscous spots on costa between middle and apex, the posterior one emitting a cloudy inwardly oblique dark fuscous streak, reaching half across wing; a cloudy dark fuscous spot on hind-margin beneath apex; a cloudy dark fuscous spot on inner margin before anal angle, sometimes obscurely connected with the central costal spot; sometimes the whole wing is suffused with fuscous, so that all the markings are obliterated except the oblique streak from inner margin near base, and the central costal spot: cilia whitish-ochreous or brownish-ochreous, with an obscure dark fuscous line. Hindwings light-grey, faintly spotted with darker, in dark specimens entirely dark grey; cilia whitish-grey, with a dark grey line near base.

The markings of this species are very dull and ill-defined, and subject to variation from the suffusion of the ground-colour; but it may apparently be always recognised amongst its immediate allies by the strongly-marked oblique dark streak from inner margin near base.

I took four specimens (all males) in virgin forest near Hamilton and Cambridge, on the Waikato, New Zealand, in January; and there are altogether four others in the British Museum, from Auckland, under the various names quoted above.

The type of *Teras congestana*, Walk., is very poor, and cannot be given with certainty as referable to this species; the other synonyms certainly belong here.

### 3. *Cac. jactatana*, Walk.

(*Batodes jactatana*, Walk., Brit. Mus. Cat. 317; *Sciaphila flexiritana*, ibid. 353; *Pedisea privatana*, ibid. 382; *Grapholitha voluta*, Feld., Reise der Novara, Pl. cxxxvii., 39).

8". Head and thorax fuscous; palpi elongate. Forewings rather narrow, posteriorly dilated; ochreous-fuscous; costa marked with small black spots; a small ochreous space towards

base of costa, beneath which is a sharply-defined sinuate thick black longitudinal streak in disc, extending from near base to before middle. Hindwings grey, spotted with darker.

This diagnosis is taken from Walker's types; I have not seen any other specimens. The species appears to be a *Cacæcia*, belonging to the same group as the other New Zealand species; it is rather narrower-winged than its congeners, and immediately distinguishable by the sinuate black discal streak.

The British Museum specimens are from Auckland, New Zealand.

#### 4. *Cac. oblongana*, Walk.

(*Teras oblongana*, Walk., Brit. Mus. Cat. 303; *Teras inaptana*, *ibid.*, 304).

♂ ♀.  $7\frac{1}{2}$ "-9". Head, palpi, and thorax greyish-fuscous; palpi rather long. Antennæ fuscous-grey. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderately broad, in male somewhat dilated posteriorly, costa gently arched, fold extending from base to one-third, hindmargin somewhat sinuate, not oblique, rounded beneath; generally ochreous-whitish, suffused with brownish-ochreous and fuscous-grey along margins, sometimes entirely brownish-grey; costa and inner margin very shortly strigulated with dark fuscous; basal patch distinct, dark fuscous-grey, often mixed with ochreous, posterior edge most distinct towards costa, angulated outwards above middle, sinuate beneath angulation, extending from one-fourth of costa to before one-fourth of inner margin; a blackish-fuscous oblique blotch on middle of costa, reaching half across wing, and a broad ill-defined triangular dark fuscous patch on costa extending nearly to apex, the two coalescing to form a large triangular blotch, mixed with reddish-fuscous (in female with reddish-ochreous) beneath its middle; a cloudy dark fuscous mark above anal angle, con-



nected with the triangular costal patch by a slender cloudy streak ; an obscure dark fuscous mark on hindmargin above middle : cilia light brownish-ochreous or fuscous-grey, with a dark fuscous line. Hindwings whitish-grey tinged with ochreous, thickly spotted with dark grey, apex dark grey ; cilia grey-whitish, with a dark grey line near base.

Nearly allied to *C. spurcatana*, but the forewings are not posteriorly dilated in the male, the groundcolour is more greyish and less ochreous, there is no conspicuous dark oblique streak from inner margin near base, and the dark markings from costa are mixed with reddish towards disc. The female is rather lighter and less strongly marked than the male.

I have four specimens (three males, one female) taken amongst forest growth near Dunedin, New Zealand, in January. Walker's types are from Auckland.

5. *Cac. cuneigera*, *Butler*.

(*Teras cuneigera*, *Butler*.)

10". Head and thorax light grey ; palpi rather elongate. Forewings moderately broad, somewhat dilated posteriorly, costa gently arched, hindmargin sinuate, not oblique ; whitish-grey, clouded with darker along inner margin and more strongly along hindmargin ; a large sharply-defined blackish-grey costal triangular blotch, extending on costa from one-fourth nearly to apex, and reaching more than half across wing. Hindwings grey spotted with darker.

A very distinct species, separable from all by the large clearly-marked dark triangular blotch on costa.

I am only acquainted with *Butler's* type, which seems to be referable to this genus, as far as I can judge without complete investigation ; the above diagnosis is drawn from it.

6. *Cac. biguttana*, *Walk*.

(*Teras biguttana*, *Walk.*, *Brit. Mus. Cat.* 305).

♂ ♀. Size, form, and colouring quite as in *C. excessana*; but forewings with a small roundish sharply-defined whitish spot in disc at one-third from base.

Very closely allied to *C. excessana*, yet conspicuously distinguished by the small whitish spot in disc.

Five specimens in the British Museum collection; the locality is given as Auckland, New Zealand.

#### 7. *Cac. excessana*, *Walk.*

(*Teras excessana*, Walk., Brit. Mus. Cat. 303).

♂ ♀. 10"-10½". Head, palpi, and thorax greyish-fuscous (in one female bright ochreous); palpi rather long. Antennæ whitish-ochreous, in female distinctly annulated with dark fuscous. Abdomen whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi banded above with dark fuscous. Forewings moderately broad, somewhat dilated posteriorly in both sexes, costa gently arched, fold extending from base to one-third, hindmargin sinuate, not oblique, rounded beneath; greyish-fuscous or ochreous-fuscous finely irrorated with dark fuscous, (in one female bright ochreous); markings only indicated by cloudy outlines hardly darker than the groundcolour; these consist of a basal patch, with outer edge strongly angulated above middle; a central fascia from middle of costa to inner margin at three-fourths, narrow and very oblique on upper half, strongly dilated on lower half; a broad triangular patch on costa before apex; an irregular cloudy spot on hindmargin above middle: cilia rather paler than groundcolour, with a darker line. Hindwings whitish-grey spotted with darker grey, cilia whitish with two dark grey lines; in the ochreous specimen hindwings white tinged with ochreous towards apex and hindmargin, spotted with grey towards inner margin, cilia ochreous-whitish with two grey lines.

Very variable in groundcolour; the only clear point of distinction appears to be in the faintness of the markings, which

are merely outlined in a tint hardly darker than the ground-colour, and the absence of those definite characteristics which are presented by the other species.

I took four specimens (two males, and two females) amongst bushes near Wellington, New Zealand, at the end of December. Walker's types are from Auckland.

8. *Cac. obliquana*, *Walk.*

(*Teras obliquana*, Walk., Brit. Mus. Cat. 302; *Teras cuneiferana*, ibid. Suppl. 1780).

♀. 12". Head and thorax pale brownish-ochreous; palpi elongate. Forewings moderately broad, hardly dilated, hindmargin sinuate beneath apex, not oblique, rounded beneath; pale brownish-ochreous; outer edge of basal patch indicated by a slender fuscous line about one-fourth, angulated above middle; a rather narrow oblique dark fuscous streak from costa before middle, reaching one-third across wing; several very irregular dark fuscous marks along inner margin from near base, and towards lower two-thirds of hindmargin: cilia pale brownish-ochreous. Hindwings whitish, thickly mottled with grey.

Distinguished from the allied species, except *C. charactana*, by the slender distinct dark oblique streak from costa before middle; from *C. charactana* by the pale brownish-ochreous ground-colour.

I have only seen Walker's types, which are from New Zealand.

9. *Cac. charactana*, *n. sp.*

♀. 8 $\frac{3}{4}$ ". Head, palpi, antennæ, and thorax creamy-white; palpi long, irrorated on sides with dark fuscous. Abdomen light grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous-grey. Forewings moderately broad, hardly dilated, costa moderately arched, hindmargin sinuate below apex, not oblique, rounded beneath; creamy-white, costa and inner margin very shortly strigulated with blackish; outer edge of

basal patch indicated by a slender line strongly angulated above middle, blackish and distinct above angulation, below it grey and nearly obsolete; a short straight slender oblique black streak from middle of costa, apex somewhat dilated, not reaching half across wing; a cloudy fuscous-grey triangular patch on costa towards apex, emitting from its apex a slender cloudy inwardly oblique streak, connecting with a faint cloudy grey oval patch above anal angle; a small faint grey spot on hindmargin above middle, containing two black dots; a few blackish scales are also scattered in the grey markings: cilia creamy-white, with some scattered black scales at base. Hindwings whitish-grey spotted with darker; cilia whitish, with a dark grey line near base.

This species is very similar in markings to *C. obliquana*, and might possibly be an extreme form, a question which can only be settled by the examination of additional specimens; at present the white groundcolour seems to afford a sufficient specific distinction, in the absence of the male.

I took one specimen on a fence near Auckland, New Zealand, in January.

10. *Cac. flavescens*, *Butler*.

(*Teras flavescens*, *Butler*).

♀.  $8\frac{1}{2}$ ". Head and thorax pale whitish-ochreous. Forewings somewhat dilated posteriorly, costa moderately arched, somewhat bent about one-third, hindmargin sinuate beneath apex; very pale whitish-ochreous; two very small dark fuscous costal spots, one in middle, second at three-fourths; cilia beneath apex dark fuscous. Hindwings whitish.

This distinctly marked species is only known to me from *Butler's* type; it appears to be referable to this genus, but I cannot speak with certainty, though it is undoubtedly not a *Teras*.

11. *Cac. amplexana*, Z.

(*Idiographis* (?) *amplexana*, Z., z. b. V. 1875, 222; *Cacacia vilis*,  
Butler).

♂ ♀. 7"-9". Head white. Palpi long, white, mixed with dark fuscous on sides. Antennæ dark fuscous, indistinctly annulated with whitish. Thorax whitish, anterior margin somewhat suffused anteriorly with dark fuscous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi banded above with dark fuscous. Forewings moderate, rather elongate, hardly at all dilated, costa moderately arched towards base, somewhat sinuate beyond middle, costal fold of male extending from base hardly as far as one-third, apex somewhat produced, hindmargin rather sharply excavated beneath apex, not oblique, bowed below middle; whitish, thinly strewn with scattered dark fuscous scales in irregular transverse strigulæ; costa and inner margin strigulated with dark fuscous; basal patch represented in male by a sharply-defined blackish-fuscous streak starting from base beneath costa directly outwards, at one-fifth from base rectangularly bent upwards and proceeding straight to costa at one-third, in female by an internally suffused dark fuscous streak starting as in male, but bent rather obliquely outwards at the angulation, and again bent obliquely inwards before reaching costa, ending on costa before one-fourth; central fascia oblique, from costa before middle to inner margin beyond middle, dark fuscous, rather narrow, in male obsolete towards costa, in female distinct throughout, anterior edge well-defined and dark-margined, posterior edge suffused; a triangular dark fuscous rather ill-defined costal patch, extending from middle of costa nearly to apex, from lower extremity of which proceed two cloudy fuscous streaks, one obliquely inwards, meeting central fascia below middle, the other to anal angle, outwardly curved near its extremity; a cloudy fuscous spot on hindmargin above middle, marked on its anterior edge with two blackish dots: cilia grey-whitish, becoming dark fuscous towards base on hindmargin,

especially near apex. Hindwings whitish, faintly tinged with yellow, and thinly spotted with grey, especially towards inner margin: cilia whitish, with a fuscous-grey line near base.

Differing from all other Australian and New Zealand species in the produced apex and excavated hindmargin of the forewings as well as the angulated dark streak beneath basal portion of costa. The palpi are not more elongate than in the other allied New Zealand species, and the species has no relation to *Idiographis*, which differs in venation. In form of wing the species is analogous to the European *C. podana* and its allies.

I have five specimens (three males, and two females) taken at Wellington, Christchurch, and Dunedin, New Zealand, in January. Zeller was only acquainted with the male, from which the female differs markedly, but his description is very accurate.

12. *Cac. (?) ænea*, *Butler*.

(*Teras ænea*, *Butler*).

11". Head and thorax brassy-fuscous; palpi elongate. Forewings oblong, moderately broad, not dilated; entirely brassy-fuscous; somewhat lighter on disc. Hindwings blackish-fuscous, along costa yellowish.

This species is very distinct from any other, and I can only conjecture that it may belong here, in the absence of a complete knowledge of its structure.

Described from *Butler's* type in the British Museum, which is from New Zealand.

13. *Cac. polygraphana*, *Walk.*

(*Tortrix polygraphana*, *Walk.*, *Brit. Mus. Cat.* 330).

♂ ♀. 8"-8½". Head, palpi, antennæ, and thorax light fuscous-grey. Abdomen whitish-ochreous suffused with grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderately broad, slightly dilated posteriorly,

costa strongly arched near base, costal fold extending from base to about one-third, hindmargin slightly oblique, hardly sinuate; varying from ochreous-grey to reddish-ochreous, with numerous very small pale dark-centred circular spots, arranged in irregular curved transverse rows; basal patch indicated by two rows of black dots, angulated in middle of wing; a fuscous-grey oblique streak from costa before middle, margined with black dots, reaching half across wing but indistinct at extremity; a small dark fuscous spot on costa at two-thirds: cilia whitish at extremities, fuscous-grey towards base, with a broad dark fuscous-grey line suffused with dark reddish-ochreous on upper two-thirds of hindmargin. Hindwings light fuscous-grey, spotted with darker; cilia whitish with two dark grey lines.

Generally distinguishable by the transverse rows of faint ocellated spots. It is nearly allied to *C. pyrosemana*, but differs from it also through the lighter and more ochreous-tinged groundcolour, the angulated edge of basal patch, and the paler hindwings.

I took four specimens amongst dry bush at Blackheath on the Blue Mountains, New South Wales, 3,600 feet above the sea, in February, and also met it at Mittagong; Mr. G. H. Raynor took it at Melbourne, and rather commonly near Launceston, Tasmania, in January. The locality of Walker's type is given as Moreton Bay, Queensland.

14. *Cac. pyrosemana*, *n. sp.*

♀. 9". Head, palpi, antennæ, and thorax dark fuscous-grey mixed with paler. Abdomen dark ochreous-grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderately broad, slightly dilated posteriorly, costa strongly arched near base, hindmargin oblique, not sinuate; dark fuscous-grey irrorated with pale cinereous-grey, tinged with ochreous on disc and towards anal angle, with transverse rows of very small faint blackish spots; costa shortly

strigulated with blackish; basal patch represented by a slender sinuate, not angulated, transverse blackish line at one-fifth; a sharply-defined oblique rather narrow blackish streak from costa before middle, reaching half across wing, sinuate and attenuated at extremity; a small triangular blackish-fuscous spot on costa at two-thirds; cilia dark grey mixed with ochreous, with a blackish line. Hindwings dark fuscous-grey, indistinctly spotted; cilia dark grey, more whitish towards anal angle, with a darker line near base.

Closely allied to *C. polygraphana*, but much darker in ground-colour and markings, without ocellated spots, and the edge of basal patch is not angulated.

One female specimen taken by Mr. G. H. Raynor, near Parramatta, New South Wales.

15. *Cac. lythrodana*, *n. sp.*

♂ ♀. 8"-9½". Head, palpi, and thorax dark fuscous-grey, mixed with paler; palpi in male with an expansible tuft of white hairs on upper surface of second joint. Antennæ dark fuscous-grey. Abdomen ochreous-grey, anal tuft in male pale ochreous. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous-grey. Forewings rather broad, posteriorly somewhat dilated, costa moderately arched, especially towards base, costal fold narrow, extending from base only to one-fourth, hindmargin somewhat oblique, slightly sinuate beneath apex; light cinereous-grey, mixed with darker scales tending to form transverse lines or strigulae; costa and inner margin strongly strigulated with blackish: outer edge of basal patch represented by a nearly straight black line from one-fifth of costa to one-fourth of inner margin; two dark fuscous-grey sharply black-margined fasciæ, first rather narrow, oblique, from costa before middle to inner margin beyond middle, second broader on costa and rapidly attenuated, running from costa at two-thirds to inner margin before anal angle, both fasciæ



attenuated in middle almost or quite to a black line, beneath the attenuated portions becoming suddenly confluent into a large subquadrate black-margined patch; a somewhat sinuate blackish line from costa a little before apex to hindmargin above anal angle; a blackish line from costa a little before apex to hindmargin above anal angle; a blackish line along hindmargin: cilia cinereous-grey, extremities beyond a blackish line white. Hindwings fuscous-grey spotted with darker; cilia whitish-grey, with two dark fuscous-grey lines.

A conspicuously distinct species, characterised by the two dark grey black-margined fasciæ on a pale grey ground, with their lower portions confluent in a large blotch; the white expansible tuft of the palpi in male is also a peculiar character, to which an analogy is found in the genus *Acroceuthes*.

I took six specimens in the bush at Blackheath in the Blue Mountains, New South Wales, (3,600 feet,) in February.

16. *Cac. miserana*, *Walk.*

(*Teras miserana*, Walk., Brit. Mus. Cat. 301; *Teras canigerana*, ibid., 301; *Sciaphila debiliana*, ibid. 351; *Teras absumptana*, ibid. Suppl. 1780).

♂ 7"-8½", ♀ 8½"-9½". Head, palpi, and thorax grey-whitish mixed with dark grey. Antennæ grey-whitish. Abdomen whitish-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderate, posteriorly somewhat contracted, costa moderately arched towards base, in male bent before middle, costal fold broad, extending from base to middle of costa, hindmargin obliquely rounded; whitish, transversely irrorated with grey; costa and inner margin strigulated in male with dark fuscous, in female with cinereous-grey; a small dark grey black-margined spot on costa at one-fourth in male, in female represented by a smaller grey mark; a cloudy grey spot on inner margin at one-third, in some specimens of male larger and blackish-grey, sometimes suffused at apex into

central fascia ; central fascia narrow, oblique, from before middle of costa to beyond middle of inner margin, in male blackish, in female cinereous-grey, partially obsolete above middle, margins rather irregular ; a small cloudy triangular patch on costa at two-thirds, in male blackish-grey, in female cinereous-grey ; two or three small transverse streaks of cinereous or blackish scales near hindmargin and above anal angle : cilia whitish, with a faint dark grey line. Hindwings whitish-grey, darker posteriorly ; cilia whitish, with a grey line near base.

In form of wing this species approximates to *C. responsana* and *C. postvittana*, but differs structurally from them in the character of the costal fold, which is strong and extends from the base fully to the middle of costa. The whitish-grey groundcolour distinguishes it from all its nearest allies ; *C. lythrodana* is also a purely grey insect, but has totally different and more sharply defined markings. The female is very different in appearance from the male, and has more the superficial features of a *Teras*.

Very common at Sydney, of sluggish habit and usually taken at rest on fences ; it occurs from August continuously to May, being absent only during the two winter months of June and July ; I also took a specimen near Wollongong, New South Wales, and one of Walker's types is said to be from Moreton Bay, Queensland, but at Sydney it appears to be a garden insect.

17. *Cac. jugicolana*, *n. sp.*

♀.  $8\frac{1}{4}''$ - $8\frac{1}{2}''$ . Head, palpi, and thorax brownish-ochreous. Antennæ light ochreous, annulated with dark fuscous. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle tibiae and tarsi suffused above with dark fuscous. Forewings moderate, oblong, not dilated, costa moderately arched near base, hindmargin slightly sinuate below apex, rather oblique ; brownish-ochreous, costa and inner margin shortly strigulated with obscure dark fuscous ; outer edge of basal patch indistinctly indicated by a fuscous line, sharply angulated above middle ; a cloudy dark

fuscous spot on inner margin at one-third, sometimes obsolete; central fascia oblique, from costa before middle to inner margin at two-thirds, ochreous-fuscous, darker fuscous on costa and inner margin, narrow on costa, gradually but not strongly dilated, margins rather irregular; an obscure fuscous triangular spot on costa at two-thirds, from apex of which proceeds a slender cloudy fuscous line to anal angle: cilia pale brownish-ochreous, with a dark fuscous-grey basal line. Hindwings whitish-grey, towards apex suffused with ochreous, spotted with darker grey; cilia ochreous-white, with a dark grey line near base.

In the absence of the male, it cannot be affirmed with certainty to which section of the genus this species is most nearly related; in shape of wing it resembles *C. polygraphana*, in markings *C. mnemosynana*; the sinuation of the hindmargin distinguishes it from the species which follow. The specimens obtained show no variation.

Mr. G. H. Raynor bred six specimens (all females) of this species from larvæ (undescribed) which he found feeding on a plant of the *Compositæ* "resembling *Senecio*" in pasture-fields on the hills near Murrurundi, New South Wales, in September; the imagos emerged in October.

18. *Cac. responsana*, *Walk.*

(*Teras responsana*, Walk., Brit. Mus. Cat. 297.)

♂. 9"-10". Head, palpi, and antennæ whitish-ochreous. Thorax pale ochreous, with a suffused dark fuscous central transverse line. Abdomen greyish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings oblong, costa moderately arched at base, bent before middle, costal fold short and narrow, not reaching base, hindmargin obliquely rounded; pale whitish-ochreous, thinly sprinkled with greyish-fuscous; costal fold strigulated with dark fuscous, somewhat suffused with ferruginous; outer edge of basal patch

indicated by a transverse oblique rather curved line of four or five blackish dots from costa at one-fifth to inner margin at one-third; central fascia moderate, oblique, from costa before middle to inner margin before anal angle, dark fuscous, mixed with ferruginous and irregularly edged with blackish, somewhat dilated on lower half, anterior edge nearly straight, posterior edge irregular and suffused below middle, with a round projection near inner margin, edged by an outwardly oblique streak from inner margin; a small elongate dark fuscous spot along costa about three-fourths, posteriorly suffused; a small irregular, sometimes obsolete, dark fuscous spot near middle of hindmargin containing two or more black dots, which are sometimes alone distinct; a short slender interrupted blackish streak near hindmargin from apex: cilia whitish, at base ochreous, with a faint dark grey line: sometimes the whole wing is more or less suffused with reddish-fuscous. Hindwings fuscous-grey, darker posteriorly, faintly spotted with darker; cilia whitish, with a dark grey line near base.

♀. 11"-12". Head, palpi, antennæ, thorax and forewings ochreous-brown; forewings more elongate than in male; markings as in male but generally obsolete, or distinct on costa and inner margin only, sometimes dark smoky-fuscous but suffused; outer edge of basal patch often forming a small dark spot on inner margin. Hindwings rather darker grey than in male.

Allied to *C. postvittana*, but usually larger and less variable; easily distinguished from it in the male by the greyish-fuscous irroration of the groundcolour, the darker and more ferruginous-tinged markings, the greater breadth of the central fascia towards the costa, and the darker hindwings. The female is very similar to *C. postvittana* female, but always darker and more fuscous, with a much less ochreous tinge.

Taken, not very commonly, at Sydney and Parramatta, usually amongst *Acacia decurrens*; very common at Melbourne, and occurs

also at Hobartown, Tasmania; it occurs from September to November, and is sluggish in habit. I bred one specimen from *Acacia decurrens*, having brought in a branch as food for other species, without noticing the larva.

The description of *Tortrix ashworthana*, Newman, (Trans. Ent. Soc. Lond. N.S. 3, 286) seems rather to point to this species, but is insufficient for determination.

#### 19. *Cac. postvittana*, Walk.

(*Teras postvittana*, Walk., Brit. Mus. Cat. 297; ? *Teras retractana* ibid. 288; *Teras dotatana*, ibid. 298; *Teras scitulana*, ibid. 298; *Teras basialbana*, ibid. 299; *Teras secretana*, ibid. 300; *Pandemis secundana*, ibid. 310; *Pandemis consociana*, ibid. 311; *Dichelia reversana*, ibid. 321; *Dichelia fedana*, ibid. 321; *Dichelia sobriana*, ibid. 322; *Pædisca immersana*, ibid. 380).

♂.  $6\frac{3}{4}$ "- $9\frac{1}{2}$ ". Head, palpi, antennæ and thorax whitish-ochreous, more or less suffused with brownish-ochreous. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous-grey. Forewings broad, short, costa gently arched, strongly bent before middle, costal fold short, narrow, fringed with hairs, not reaching base, hindmargin obliquely rounded; pale ochreous or whitish-ochreous, sometimes irrorated with fuscous; costa and inner margin more or less distinctly strigulated with ochreous or fuscous; markings variable in intensity, reddish-ochreous, fuscous, or dark reddish-fuscous; basal patch faintly indicated or quite obsolete, outer edge angulated, often represented only by a small costal spot at one-fifth; central fascia oblique, from before middle of costa to inner margin before anal angle, slender on costa, often widely interrupted in middle, anterior edge generally distinct, sometimes dark-margined, nearly straight, posterior edge distinct towards costa, dilated and suffused beneath; sometimes a narrow streak or cloud along inner margin from base to fascia, often produced also along hindmargin and attenuated to apex, or the hindmarginal

portion is represented by two or three elongate streaks or rows of dots; an elongate narrow blotch along costa about three-fourths; sometimes there are faint hindmarginal dots, or the veins are posteriorly lined with darker, or the entire apical half of wing beyond central fascia is suffused with reddish-ochreous: cilia whitish-ochreous or ochreous, with a dark fuscous line, and a dark spot at anal angle. Hindwings whitish-grey, towards costa whitish, more grey towards inner margin, spotted with darker grey: cilia whitish, faintly ochreous-tinged towards apex, with a dark grey line.

♀. 9"-11½". Head, thorax, and forewings more suffused with brownish-ochreous; forewings more elongate, often irrorated with darker; markings as in male but more indistinct and suffused; outer edge of basal patch generally forming a small subquadrate dark fuscous spot on inner margin: cilia pale ochreous, becoming reddish-ochreous towards apex, with a dark fuscous line suffused at apex and anal angle. Hindwings hardly darker than in male, somewhat ochreous-tinged at apex.

This species is very variable both in size and markings, so that it is difficult to include all the forms under one description, but there can be no doubt that all the varieties belong to the same species. In form of wing it is similar to *C. responsana* and *C. mnemosynana*, but the costal fold of the male is less strong than in the former, and stronger than in the latter of those species; from both the male is generally distinguishable by the clear pale ochreous groundcolour, and more or less ochreous-tinged markings; most of the varieties are also peculiar to this species, and in the normal form the slenderness of the central fascia towards costa is a good distinguishing characteristic. The female may be known by its uniform brownish-ochreous hue. Small pale specimens of the male are very similar to *Tortrix glaphyrana*, but the presence of the costal fold affords a ready test.

Larva moderately elongate, cylindrical, rather attenuated posteriorly, active; dull yellowish-green, spots hardly lighter;

dorsal and subdorsal lines indistinctly darker green, often obsolete; head greenish-ochreous. Feeds between joined leaves, or rolled leaves or amongst spun-together flowers or fruits of *Correa speciosa*, *Boronia ledifolia* (*Rutaceæ*), *Perseonia lanceolata*, *Grevillea robusta* (*Proteaceæ*), and a marsh-growing species of *Polygonum*, in August, September, and January; it is probably almost indiscriminately polyphagous. Pupa free amongst joined leaves.

Generally distributed and abundant; it occurs at Sydney, Bathurst, Orange, Morpeth, and Kiama in New South Wales, and also at Melbourne, and in Tasmania; from August to October, and in January, March, and April.

From the formidable array of synonyms prefixed, it will be seen that Walker described the twelve specimens in the British Museum as twelve different species, locating them in four distinct genera. The type of *Teras retractana*, quoted as a doubtful synonym, is a specimen of this species and is labelled Australia, but the description does not at all agree with the type, and as it professes to be taken from an American insect, the specimens have probably been interchanged; the name therefore cannot stand. The other types are all more or less ordinary varieties.

20. *Cac. mnemosynana*, *n. sp.*

♂.  $7\frac{3}{4}$ "-8". Head, palpi, and thorax greyish-fuscous; palpi elongate. Antennæ greyish-fuscous, annulated with blackish. Abdomen whitish-grey. Legs whitish, anterior pair dark fuscous, middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings moderate, oblong. costa gently arched, bent before middle, costal fold rudimentary and very short, not extending to base, hindmargin obliquely rounded; greyish-fuscous, indistinctly transversely strigulated with darker; basal patch faintly darker, outer edge angulated above middle; central fascia oblique, from before middle of costa to inner margin before anal angle, rather narrow towards costa, lower two-thirds moderately dilated, anterior margin slightly curved, posterior margin irregularly

waved, distinct; an outwardly curved dark fuscous line from costa at two-thirds to hindmargin above anal angle, beyond which the apical portion of the wing is suffusedly dark fuscous, less strongly towards apex itself: cilia greyish-ochreous, with a strong black line near base, suffused at anal angle. Hindwings whitish spotted with grey; cilia whitish, with a dark grey line near base.

Nearly allied to the two preceding, but readily separated by the rudimentary costal fold, the greyish-fuscous groundcolour, and whitish hindwings. The female is not known to me.

Five males taken at Bulli, New South Wales, and at Melbourne, and Warragul, Gippsland, in October and December.

#### 21. *Cac. liquidana*, *n. sp.*

♂ ♀.  $8\frac{1}{2}$ "- $9\frac{1}{2}$ ". Head, palpi, antennæ, and thorax light ashy-grey, with a few black scales; palpi rather short. Abdomen whitish-grey, anal tuft ochreous-white. Legs ochreous-white, anterior and middle tibiæ and tarsi suffused with dark fuscous-grey. Forewings moderate, in female narrow, costa moderately arched towards base, costal fold extremely short and rudimentary, not reaching base, hindmargin oblique, especially in female; light ashy-grey, faintly mixed with ferruginous, and posteriorly with a few scattered black scales; costal edge suffused with dark grey towards base in male: cilia whitish mixed with light grey. Hindwings whitish-grey or light grey; cilia white, with a faint grey line near base.

A distinct species, characterised by its unicolorous light grey forewings; it has a superficial resemblance to *Tortrix concordana* and *T. indigestana*, but apart from the costal fold, which is very slight and imperfect, it may be recognised by its much larger size.

Five specimens taken in the dry bush at Blackheath in the Blue Mountains (3,600 feet) and two at Mittagong; I have also seen a specimen from Melbourne; it is on the wing in March.



22. *Cac. tessulatana*, n. sp.

♂. 8". Head and palpi whitish, mixed irregularly with dark fuscous; palpi rather short. Antennæ black. Thorax dark fuscous, mixed posteriorly with white. Abdomen light greyish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings moderate, rather elongate, costa moderately arched, costal fold very short and rudimentary, fringed with hairs, hindmargin obliquely rounded; white, coarsely irrorated with dark fuscous, and with dark fuscous markings; costal fold and extreme base of wing dark fuscous; an oblique slender fascia from costa at one-fourth, reaching to fold, angulated above middle; an irregular oblique streak from middle of costa, not reaching half across wing, its extremity bent outwards; beneath this is a small double spot below middle of wing; a small spot on middle of inner margin; between middle and apex are five or six small subquadrate spots on costa; between the extremity of the oblique streak from middle of costa and the apex of wing is an elongate cloudy streak, suffusedly connected with each; a cloudy spot on anal angle, and a roundish smaller spot directly above it; veins near hindmargin lined with dark fuscous; a dark fuscous line along hindmargin: cilia white, basal half barred with dark fuscous. Hindwings light fuscous-grey; cilia white, with a dark grey line near base.

Also very distinct from any other; in form of wing resembling the preceding, distinguished by the white groundcolour and reticulated dark markings, which are quite different from those of *C. desmotana*.

Mr. G. H. Raynor took one specimen at Melbourne in December.

23. *Cac. desmotana*, n. sp.

♂ ♀. 8½"-9½". Head black behind, face and crown white. Palpi rather short, black, terminal joint and apex of second joint white. Antennæ black, very slenderly annulated with white. Thorax white, anterior margin black; in male a black spot on

back. Abdomen pale dull yellow. Legs yellowish-white, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings rather broad, costa rounded especially towards base, costal fold very short and quite rudimentary, hindmargin rather oblique, rounded; clear white, with sharply-defined blackish-fuscous, almost black, markings; a small triangular spot on inner margin at base, extending nearly to costa; a slender nearly straight fascia from costa at one-fourth to inner margin at one-third, its posterior margin with a very short tooth on submedian fold; between this fascia and base the extreme costal edge is blackish; a second narrow fascia from middle of costa, becoming bifurcate in middle of wing, where its anterior edge is more or less sharply excavated, the first branch running to inner margin beyond middle, the second to inner margin just before anal angle; a third narrow fascia from costa at three-fourths to hindmargin above anal angle, connected with the second by a slender streak from middle of second to third near costa; a narrow streak from apex, connecting with third fascia below middle; sometimes a small dot on costa before apex; cilia dull whitish-ochreous. Hindwings pale dull yellowish, often deeper and more greyish-tinted posteriorly; cilia whitish-yellow, with a faint yellowish-grey line.

This handsome and conspicuous insect is very similar in type to *Tortrix amænana*, but the markings will be found on comparison to be very different in position, and I am not sure that the resemblance indicates anything more than an analogy.

I took five specimens amongst low heathy scrub at Blackheath on the Blue Mountains, at an elevation of 3,600 feet, in February.

#### 19. TORTRIX, Tr.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint triangularly scaled, terminal joint distinct. Forewings moderately elongate, costa in male simple, tolerably evenly arched, hindmargin obliquely rounded.

Hindwings broader than forewings, rounded-trapezoidal. Forewings with veins 7 and 8 separate, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 separate.

This is the typical genus of the largest and most simply-organised group of the family, characterised by the separation of veins 7 and 8 of forewings, the origin of veins 3 and 4 of hindwings from a point, and the approximation of 5 to 4 at base. Of the other Australian genera belonging to the group, *Cacæoia* is distinguished from *Tortrix* by the costal fold of male, *Cryptoptila* by the tuft of scales on the costa of hindwings, *Arotrophora* by the elongate palpi, and the deeply dentate antennæ of male, having cilia arranged in tufts, *Dipterina* by the origin of veins 6 and 7 of hindwings from the same stalk, and by the antennæ of male having long fine cilia arranged in two rows. Other genera of the group (not Australian) are *Teras*, having vein 7 of forewings running to costa, (Europe and America); *Pandemis*, having an excavated notch in the antennæ of male above basal joint (Europe and America); *Auchoteles*, (South America) having very short minute palpi; and probably other genera not yet sufficiently defined, whose distinctness it is not here necessary to examine.

There is a considerable number of European and American species, and the genus is probably of universal distribution. I have twelve Australian species, and four from New Zealand, of which the following is a tabulation:

- I. Forewings white, with five black fasciæ. . . 1. amœnana.
- II. Forewings dark fuscous, with three whitish fasciæ . . . . . 2. subfurcatana.
- III. Forewings pale greyish-ochreous or whitish, with dark longitudinal markings 4. aulacana.
- IV. Forewings with distinct transverse central fasciæ.
  - A. Forewings light reddish-fuscous . . . 3. ceramicana.

- B. Forewings whitish-ochreous.
1. Dorsal half clouded with fuscous-grey 5. peloxythana.
  2. Dorsal half not clouded.
    - a. Hindwings fuscous-grey .. .. 6. trygodana.
    - b. Hindwings whitish or pale grey.
      - i. Central fascia dilated on lower half .. .. 7. philopoana.
      - ii. Central fascia slender throughout 8. glaphyrana.
- C. Forewings grey .. .. 13. aërodana, (part)
- V. Forewings without transverse fascia. .
- A. Forewings pale ochreous or yellow.
1. With a purple-fuscous hindmarginal band.. .. 16. standishana.
  2. Without marginal band.
    - a. Hindwings dark smoky-grey .. 15. concolorana.
    - b. Hindwings whitish-grey.
      - i. Dorsal half of forewings clouded with grey .. .. 10. centurionana.
      - ii. Dorsal half of forewings not clouded.
        - \*. Forewings with a few scattered black scales .. 9. leucaniana.
        - \*\* . Forewings without scattered black scales .. .. 8. glaphyrana, ♀.
- B. Forewings grey.
1. Forewings rather broad .. .. 11. concordana.
  2. Forewings elongate.
    - a. Hindwings dark grey .. .. 13. aërodana, male.
    - b. Hindwings whitish-grey.
      - i. Forewings with numerous scattered black scales .. .. 12. indigestana.
      - ii. Forewings without black scales 13. aërodana, female.
- C. Forewings deep brownish or reddish-ochreous .. .. 14. siriana.

1. *Tort. amænana*, *Walk.*

(*Conchylis amænana*, *Walk.*, *Brit. Mus. Cat.* 366; *Conchylis semi-rectana*, *ibid.* 987; *Conchylis galbana*, *Feld.*, *Reise der Novara*, *Pl. exl.*, 29.

♂ ♀.  $7\frac{1}{2}$ "- $10\frac{1}{2}$ ". Head deep yellow. Palpi black, apex of second joint yellow above. Antennæ dark fuscous. Thorax black, with a white spot on each side, generally confluent posteriorly. Abdomen deep golden-yellow. Legs yellow, anterior and middle pair suffused with dark fuscous. Forewings moderate, somewhat dilated posteriorly, costa moderately arched, hindmargin obliquely rounded; clear white, with sharply-defined black markings, forming five transverse fasciæ, rather variable in form and intensity; first narrow, rather oblique, close to base; second narrow, nearly straight, from costa at one-fourth to inner margin at one-third; third from before middle of costa to middle of inner margin, variable, often irregular, margins sometimes toothed, sometimes enclosing a small white spot on inner margin; fourth rather irregular, from costa at three-fourths to inner margin just before anal angle, dilated towards inner margin, and generally enclosing a small white spot there; between third and fourth fasciæ is a small spot on costa, sometimes confluent at its extremity with fourth fascia beneath costa; fifth from costa before apex to hindmargin above anal angle, connected below costa by a short transverse bar with fourth; an irregular black streak along hindmargin from apex, reaching to extremity of fifth fascia, attenuated beneath; cilia dull whitish-ochreous, suffused with grey towards base. Hindwings golden-yellow, posteriorly rather deeper, apex with a small double suffused dark fuscous spot; cilia whitish-yellow, with an indistinct fuscous-grey line near base.

This strikingly handsome species bears some general resemblance to *Cacæcia desmotana*, but the markings are quite differently placed, and the hindwings are deeper yellow; the forewings are also rather narrower.

Larva stout, cylindrical, with scattered whitish hairs; rather dull green, spots slightly paler, dorsal vessel indigo-green; head reddish-ochreous, more reddish on crown, face greenish; second segment greenish-ochreous, with a darker green square patch above on posterior margin. It feeds amongst spun-together shoots, or along twigs amongst the leaves, on *Monotoca scoparia* (a low heath-like shrub belonging to the *Epacrideæ*), usually three or four together in a good deal of dense web: and pupates in a rough silken cocoon in the same situation. These larvæ were found in October, and the imagos emerged in November.

Very common amongst its food-plant at Blackheath on the Blue Mountains, 3,600 feet above the sea; and occurs also more sparingly (and of a smaller size) in places near Sydney; it is on the wing in November, January, and March.

## 2. Tort. subfurcatana, Walk.

(*Conchylis subfurcatana*, Walk., Brit. Mus. Cat. 368).

♂ ♀.  $7\frac{1}{2}$ "- $8\frac{1}{2}$ ". Head, palpi, and thorax dark reddish-ochreous brown. Antennæ dark fuscous. Abdomen fuscous-grey, on sides ochreous. Legs pale yellowish, anterior and middle pair suffused above with dark fuscous. Forewings moderately broad, costa moderately arched towards base, hindmargin slightly oblique; rounded; white, sometimes suffused with pale ashy-grey, with sharply-defined markings, varying from reddish-ochreous-brown to dark fuscous; basal patch somewhat paler at base, its outer edge nearly straight, extending from one-fourth of costa to one-third of inner margin; central fascia rather oblique, from before middle of costa to middle of inner margin, moderately broad, slightly curved, sometimes slightly dilated towards inner margin; a second fascia, nearly equally broad, from costa at two-thirds to anal angle, rather sinuate, generally enclosing a white dot on costa, and connected with central fascia on inner margin by a slender streak; a rather broad streak from apex along upper two-thirds of hindmargin, rapidly attenuated beneath: cilia

ochreous-grey, with an indistinct dark fuscous line near base. Hindwings dark fuscous-grey, sometimes becoming golden-yellow towards base; cilia whitish-ochreous, with an indistinct dark fuscous line near base.

A distinct species, appearing to have three straight white or grey-whitish fasciæ on a dark ground. The tendency of the hindwings (in both sexes) to sometimes become yellow at the base is a curious form of variation.

Rather common in marshy places amongst thickets of swamp-vegetation; it occurs at Sydney, Bulli, and on the Richmond River, in New South Wales; near Melbourne; and at Brighton in Tasmania; from September to November, and in January and March.

### 3. *Tort. ceramicana*, *n. sp.*

♂. 8½". Head, palpi, antennæ and thorax reddish-fuscous; thorax crested. Abdomen pale greyish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings moderate, costa moderately arched, hindmargin sinuate below apex, oblique; light reddish-fuscous, with white and dark reddish-fuscous markings; costal edge slenderly dark fuscous towards base; an indistinct reddish-fuscous streak beneath costa from near base to one-third, interrupted by a whitish spot before its extremity; a sharply-defined triangular dark reddish-fuscous spot, edged with ochreous-white, below middle towards base, its anterior angle very acute, nearly reaching middle of base of wing, upper posterior angle in middle of wing at one-third from base, lower posterior angle almost reaching middle of inner margin; a rather narrow dark reddish-fuscous streak from somewhat above centre of wing to anal angle, margined with ochreous-whitish, posteriorly sinuate; between its upper extremity and the upper posterior angle of the triangular spot is a small oblong white spot; a large triangular dark reddish-fuscous blotch towards apex, whitish-margined beneath,

its apex below costa slightly beyond middle, somewhat suffused into apex of central streak, its base extending along hindmargin from beneath apex to middle, its upper side parallel with costa, its lower side somewhat curved; this blotch is cut by a narrow white streak running from immediately beneath costa beyond middle obliquely outwards to middle of disc at two-thirds from base, and a second narrow white streak from apex of wing obliquely inwards, nearly reaching extremity of first white streak: cilia reddish-fuscous. Hindwings pale fuscous-grey; cilia whitish-grey, with a dark grey line near base.

This species departs somewhat from the usual generic characters of *Tortrix* in the distinctly crested thorax, which does not however appear to me to afford a sufficient basis for generic distinction. Its markings are very eccentric and irregular, but the normal type can still be clearly traced in them.

I have only one male, taken by Mr. Miskin near Brisbane.

#### 4. *Tort. aulacana*, *n. sp.*

♂.  $7\frac{1}{2}$ ". Head and palpi light grey or whitish, mixed with fuscous-grey. Antennæ light grey. Thorax greyish-fuscous. Abdomen light ochreous-grey, whitish on sides. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with grey. Forewings moderate, costa moderately arched, hindmargin obliquely rounded; pale greyish-ochreous, or white coarsely irrorated with dark fuscous-grey; costa very narrowly and inner margin more broadly suffused with dark grey, costa mixed with reddish; a straight slender dark fuscous line from base beneath costa to apex, well-defined beneath, cloudy above, posteriorly rather indistinct; some irregular dark greyish-fuscous or blackish-fuscous cloudy markings, consisting of a streak from base above fold to middle, an oblique streak from centre to above anal angle, and an oblique streak from disc at two-thirds to apex, suffused together with fuscous-grey clouds so as to form a cloudy gradually dilated streak from base to hindmargin, between which and the



line from base to apex is a clear rather broad longitudinal space of groundcolour, containing a short cloudy longitudinal fuscous-grey line in middle of disc: cilia pale ochreous or light reddish-fuscous towards base, whitish towards extremities, with a dark fuscous-grey line along base. Hindwings fuscous-grey; cilia whitish, with a fuscous-grey line near base.

Characterised by the cloudy but distinct longitudinal markings, the colour and intensity of which appear subject to considerable variation.

Three males taken at Mount Macedon, Victoria, and at Parramatta, New South Wales, in September.

5. *Tort. peloxythana*, *n. sp.*

♂. 6 $\frac{3}{4}$ ". Head, palpi, and thorax brownish-ochreous, irrorated with dark fuscous. Antennæ dark fuscous. Abdomen dark fuscous mixed with ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings rather narrow, costa slightly arched, hindmargin obliquely rounded; ochreous-white, dorsal half below a line from middle of base to apex wholly suffused with dark grey mixed with ochreous, the groundcolour above this is irrorated with dark grey and ochreous except towards costa; markings dark grey mixed with ochreous, on dorsal half obsolete through the suffusion; basal patch indistinct, outer edge starting from one-fourth of costa, somewhat angulated above middle; central fascia oblique, moderately narrow, starting from costa before middle; a wedge-shaped elongate blotch along costa from beyond middle nearly to apex: cilia ochreous-white, near anal angle grey, with a blackish line near base. Hindwings rather dark fuscous-grey; cilia ochreous-whitish, with a dark fuscous line near base.

Distinguished amongst the fasciated species by the dark grey suffusion of the dorsal half of forewings, and the general darker colouring.

I took one specimen on the hills near Murrurundi, New South Wales, in November.

6. Tort. trygodana, *n. sp.*

♂.  $6\frac{3}{4}$ ". Head, palpi, and thorax pale ochreous. Antennæ ochreous-grey. Abdomen grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings moderate, posteriorly somewhat narrowed, costa moderately arched, hindmargin obliquely rounded; pale ochreous, with a few scattered dark fuscous strigulæ, especially towards hindmargin; inner margin regularly strigulated with dark fuscous; a dark fuscous spot on disc at one-fourth from base, representing angle of basal patch; central fascia irregular, oblique, dark fuscous, starting from beneath costa in middle, at first very slender, lower two-thirds rather broader but margins very irregular, posterior margin indistinct; a dark fuscous line from costa before apex to hindmargin above anal angle; cilia whitish-ochreous. Hindwings fuscous-grey; cilia whitish-grey, with a fuscous-grey line near base.

Closely allied to *T. philopoana* and *T. glaphyrana*, but differing from both in the darker hindwings, the scattered dark strigulæ on forewings, and the character of the central fascia, which is very irregularly margined and does not reach the costa.

One male taken amongst bush at Parramatta, New South Wales, in October.

7. Tort. philopoana, *n. sp.*

♂ ♀.  $6\frac{1}{2}$ "-8". Head, palpi, antennæ, and thorax pale ochreous. Abdomen whitish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with fuscous-grey. Forewings moderate, in female more elongate and narrower, costa moderately arched towards base, hindmargin obliquely rounded, more obliquely in female; pale ochreous, generally with a few scattered fuscous scales; inner margin faintly strigulated with fuscous;

basal patch ochreous-fuscous, generally indistinct, sometimes well-marked, outer edge running from costa at one-fifth to inner margin at one-fourth, angulated above middle; central fascia ochreous-fuscous, oblique, running from before middle of costa to anal angle, narrow towards costa, lower two-thirds somewhat dilated, margins slightly irregular, generally with a black dot on posterior margin below middle; a small somewhat triangular, ochreous-fuscous spot on costa midway between central fascia and apex; sometimes a small cloudy spot on middle of inner margin, tending to unite with costal spot or base of central fascia; in female these markings are often more reddish-ochreous and less distinct: cilia whitish-ochreous. Hindwings whitish-grey, in female often whitish, somewhat tinged with ochreous towards apex; cilia whitish, with a faint grey line near base.

Distinguished from *T. glaphyrana* especially by the dilation of the lower portion of the central fascia, and the usually perceptible basal patch; the female does not differ in markings from the male, and is therefore very different from *T. glaphyrana*, female, which is entirely without markings, except occasionally a small dorsal spot.

I found this species abundant amongst the long grass in swampy forest near Hamilton, New Zealand, in January.

8. *Tort. glaphyrana*, *n. sp.*

♂. 6"-8". Head, palpi, antennæ, and thorax pale ochreous. Abdomen whitish-ochreous, rarely greyish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with fuscous-grey. Forewings moderate, costa moderately arched, hindmargin obliquely rounded; pale ochreous; basal patch obsolete, its outer edge sometimes indicated by a row of five or six dark fuscous dots, angulated in middle; central fascia very slender throughout, oblique, running from before middle of costa to inner margin at three-fourths, brownish-ochreous, generally

becoming dark fuscous on costa and inner margin, sometimes darker throughout, posterior margin always indistinct; generally there is a black dot a little beyond posterior margin of central fascia below middle; a very small somewhat triangular fuscous spot on costa at three-fourths; sometimes a faint brownish cloud, or two or three dark fuscous dots, near middle of hindmargin: cilia whitish-ochreous. Hindwings whitish-grey or pale grey, slightly ochreous-tinged posteriorly; cilia whitish, with a faint grey line near base.

♀. 7"-8". Forewings rather narrower and more elongate than in male, costa less arched; unicolorous pale ochreous; usually a minute blackish dot in disc beyond middle; sometimes a small cloudy dark fuscous spot on inner margin at three-fourths: cilia whitish-ochreous. Hindwings whitish-grey, cilia whitish.

Differs from *T. trygodana* by the entire, slender, and evenly margined central fascia, and the whitish-grey hindwings; from *T. philopoana* in the male by the slenderness and absence of dilation in the central fascia, the darker fuscous markings, and the absence of the basal patch, in the female by the absence of any transverse markings.

A common species, occurring both in dry bush and in swampy places, at Sydney, Parramatta, Morpeth, and Shoalhaven, New South Wales; near Melbourne; and at Toowoomba (2,000 feet) Queensland; from October to March.

#### 9. *Tort. leucaniana*, Walk.

(*Conchylis leucaniana*, Walk., Brit. Mus. Cat. 370; *Gelechia intactella*, ibid. 652; *Teras pauculanana*, ibid. Suppl. 1781).

♂ ♀. 6½"-8". Head, palpi, antennæ, and thorax pale ochreous. Abdomen whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused with smoky-fuscous. Forewings moderate, in female narrower and more elongate, costa moderately arched, hindmargin oblique, more so in female,

straight beneath apex; pale ochreous, in female sometimes pale reddish-ochreous, often slightly darker between the veins posteriorly; a few irregularly strewn black scales; generally a rather more conspicuous black dot on disc beyond middle, usually preceded by a short longitudinal cloudy-grey streak above middle: cilia pale ochreous, extremities whitish. Hindwings whitish, posteriorly greyish-tinged; cilia whitish.

Distinguishable from all its allies except *T. glaphyrana* female, by the unicolorous pale ochreous forewings; the male is much broader-winged than *T. glaphyrana* female, and even in the female the forewings are comparatively less elongate, but the females of the two species are in some cases hardly separable, except by the presence of a few scattered blackish scales in *T. leucaniana*; the males are widely different.

Appears to be generally common in New Zealand, in grassy places; I found it abundantly near Hamilton and Cambridge, on the Waikato, and also at Auckland and Wellington, in December and January.

10. *Tort. centurionana*, *n. sp.*

♂ 11", ♀ 12½"-13". Head, palpi, and thorax whitish-grey, densely irrorated with dark grey. Antennæ dark fuscous, in male strongly ciliated. Abdomen pale grey or ochreous-grey. Legs grey-whitish, anterior and middle tibiæ and tarsi suffused with fuscous-grey. Forewings elongate, in female very elongate, costa rather strongly arched, hindmargin very obliquely rounded; pale reddish-ochreous, darker and with rows of scattered black scales between the veins; dorsal half of wing, a narrow cloudy streak from base to two-thirds of disc above middle, and a slender streak along costa from one-third to apex suffused with fuscous-grey; cilia white, mixed with grey, with a grey line near base. Hindwings whitish-grey, slightly darker posteriorly; cilia whitish with a faint grey line near base.

Easily known by its large size, very elongate forewings (of which the costa is still strongly arched) and cloudy longitudinal suffusion.

I took four specimens (two males, and two females) amongst dry bush at Sydney and Parramatta in the very early spring months, July and August; they appeared very sluggish and inactive.

11. *Tort. concordana*, n. sp.

♂ ♀.  $6\frac{1}{2}$ "-8". Head, palpi, and thorax whitish-grey. Antennæ whitish, slenderly annulated with dark fuscous. Abdomen whitish-grey, sides and anal tuft whitish-ochreous. Legs whitish, anterior and middle tarsi and tibiæ suffused with dark fuscous above. Forewings moderate, in female rather more elongate, costa rather strongly arched, hindmargin obliquely rounded; whitish-grey, very faintly ochreous-tinged, in one female with small scattered ochreous spots towards inner margin; sometimes a few scattered blackish scales towards hindmargin: cilia whitish-ochreous, extremities paler. Hindwings whitish or whitish-grey, slightly darker posteriorly; cilia whitish, faintly ochreous-tinged round apex.

Characterised by the unicolorous whitish-grey forewings; very closely allied to *T. indigestana*, but the forewings are shorter and broader (especially in male), the groundcolour is lighter, glossier, and slightly ochreous-tinged, especially in cilia, there are at most only a few scattered black scales posteriorly, and there is no reddish discal suffusion.

Larva rather stout, posteriorly somewhat attenuated, with a few whitish hairs; dull grey-green, slightly brownish tinged, spots hardly paler; head and second segment black, very glossy; anal segment ochreous. Feeds in spun-up shoots, or amongst several cylindrically-united leaves of *Hibbertia linearis* and *H. fasciculata* (*Dilleniaceæ*); these larvæ were found in July, and the imago emerged in August.

Common in open bush amongst its food-plant near Sydney and Parramatta, and at Melbourne, in the spring, August and September, and again in March.

12. Tort. indigestana, n. sp.

♂ ♀.  $5\frac{3}{4}$ "- $7\frac{1}{4}$ ". Head, palpi, and thorax whitish-grey or whitish, mixed with darker. Antennæ whitish, annulated with dark fuscous, in female somewhat suffused. Abdomen pale grey, sides and anal tuft whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings elongate, rather narrow, in female more elongate, costa moderately arched, hindmargin very obliquely rounded; pale ashy-grey, mixed with darker, and irregularly irrorated with black scales; a more or less distinct reddish suffusion on disc beyond middle: cilia whitish, with a faint grey line near base.

Near *T. concordana*, but rather smaller, the forewings narrower and more elongate, with the hindmargin more oblique, the groundcolour darker and coarsely irrorated with black, with a mixture of reddish in disc.

Larva undistinguished from that of *T. concordana*; feeding in spun-up shoots or amongst joined leaves of *Hibbertia linearis*, in July.

Less common than the preceding; occurring in similar localities near Sydney, in August and September.

13. Tort. aërodana, n. sp.

♂.  $4\frac{3}{4}$ "- $5\frac{1}{4}$ ". Head, palpi, and thorax whitish-grey mixed with dark grey. Antennæ dark fuscous-grey, sometimes with whitish annulations. Abdomen light grey, anal tuft whitish. Legs grey-whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings narrow, costa slightly arched, hindmargin very obliquely rounded; dark grey, irrorated with ashy-whitish and black scales; sometimes there is a distinct ochreous slender oblique fascia from middle of costa to inner margin before anal

angle, and costal spot at three-fourths, but these are often imperceptible; cilia whitish-grey mixed with darker. Hindwings dark grey; cilia paler, with a dark grey line near base.

♀.  $6\frac{1}{2}$ "-7". Head, etcætera, as in male. Abdomen whitish-ochreous. Forewings with costa somewhat more arched towards base, hindmargin very oblique; paler than in male, without trace of fascia: cilia whitish. Hindwings whitish, posteriorly whitish-grey; cilia white, with a faint grey line near base.

Allied to *T. indigestana*, but the male is much smaller and narrower-winged, the forewings much darker, often with a distinct ochreous fascia and costal spot, and the hindwings dark grey; the female, being paler, and with whitish hindwings, is hardly separable from *T. indigestana* female, but appears more uniform pale grey, with less distinct blackish irroration, and without any reddish tinge in disc.

I took eight specimens (six males, and two females) amongst dry low heathy scrub near Hamilton, on the Waikato, New Zealand, in January.

#### 14. *Tort. siriana*, n. sp.

♂.  $4\frac{3}{4}$ "- $5\frac{1}{2}$ ". Head, palpi, and thorax deep brownish-ochreous. Antennæ ochreous, annulated with dark fuscous. Abdomen blackish-fuscous. Legs pale greyish-ochreous, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings narrow, costa gently arched, hindmargin very obliquely rounded; deep brownish-ochreous, generally mixed with dark fuscous posteriorly, sometimes throughout; usually a distinct blackish dot on disc beyond middle: cilia brownish-ochreous, at anal angle mixed with dark fuscous. Hindwings blackish; cilia blackish, extremities ochreous round apex.

♀.  $6\frac{1}{2}$ ". Head, et cætera, as in male. Abdomen whitish-ochreous. Forewings rather more elongate, apex more acute, hindmargin very oblique; unicolorous reddish-ochreous; cilia



ochreous, reddish-tinged towards apex, extremities whitish towards anal angle. Hindwings whitish, apex faintly greyish; cilia whitish.

A very distinct species, in form resembling *T. aërodana*; characterised by its small size, and the uniform deep brownish-ochreous or reddish-ochreous forewings; the hindwings are blackish in male, whitish in female.

I found the male abundant (and took one female), in the hot sunshine amongst long grass in a very restricted locality on the skirts of virgin forest near Hamilton, New Zealand; they appeared to fly amongst the tops of the grass, but were difficult to see.

15. *Tort. concolorana*, *n. sp.*

♂.  $5\frac{1}{2}$ ". Head, palpi, and antennæ smoky-grey. Thorax ochreous-yellow. Abdomen dark grey. Legs whitish, anterior and middle tibiæ and all tarsi suffused with dark grey. Forewings moderate, costa moderately arched, hindmargin obliquely rounded; unicolorous ochreous-yellow; cilia slightly paler, extremities whitish. Hindwings smoky-grey, posteriorly darker; cilia smoky-grey, with a dark grey line near base.

In form of wing resembling the following; recognisable by the unicolorous yellow forewings, and the sharply contrasted dark grey head.

One specimen, taken in dry bush near Sydney in September.

16. *Tort. standishana*, *Newman*.

(*Tortrix standishana*, Newman, Trans. Ent. Soc. Lond., N.S. III., 286).

♂ ♀.  $5\frac{1}{4}$ "- $7\frac{1}{2}$ ". Head ochreous-yellow. Palpi dark fuscous. Antennæ dark fuscous. Thorax dark purplish-fuscous. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and all tarsi suffused with dark fuscous. Forewings

moderate, costa gently arched, hindmargin obliquely rounded; ochreous-yellow, with a fuscous-purple band along hindmargin, moderately broad towards costa, gradually attenuated to anal angle: cilia yellowish mixed with grey, extremities paler. Hindwings fuscous-grey; cilia grey, with a dark fuscous line near base.

A small species, but conspicuously distinct through the purplish hindmarginal band on the yellow forewings. Newman's description appears certainly referable to this species.

Rather common in low dry bush near Sydney, flying near the ground towards sunset; also at Blackheath (3,600 feet) on the Blue Mountains, and I have received specimens from Coomboolaroo, near Duaringa, Northern Queensland; Newman's type was from the ranges near Melbourne. It is on the wing from August to October, and again in March.

#### 20. DIPTERINA, *n. g.*

Thorax generally with a very small crest. Antennæ in male somewhat thickened, biciliated with long fine cilia. Palpi moderate, porrected, second joint triangularly rough-scaled, terminal joint almost concealed. Forewings rather elongate, costa in male simple, evenly arched, hindmargin very oblique, almost sinuate, rounded. Hindwings rounded-trapezoidal, not broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 from a point, 5 slightly approximated to 4 at base, 6 and 7 stalked.

Allied to *Tortrix* and *Arotrophora*, but distinguished from both by the stalking of veins 6 and 7 of hindwings, the presence of a distinctly marked secondary cell in forewings, and the long fine double cilia of the antennæ in male. In superficial appearance the species rather remind one of *Sciaphila*.

I have four Australian and one New Zealand species, which may be thus arranged:

- A. Forewings pale yellow, with blackish markings .. .. .1. *tasmaniana*.
- B. Forewings whitish.
1. Central fascia straight, oblique .. ..2. *tribolana*.
2. Central fascia angulated .. ..5. *imbriferana*.
- C. Forewings grey, with darker markings ..4. *rupicolana*.
- D. Forewings dark purplish-fuscous, with blackish transverse lines .. ..3. *refluana*.

1. Dipt. *tasmaniana*, *Walk.*

(*Conchylis tasmaniana*, Walk., Brit. Mus. Cat. 365).

♂ ♀. 5"-7". Head and palpi deep yellow. Antennæ whitish, annulated with dark fuscous, basal joint yellow. Thorax blackish-fuscous. Abdomen dark fuscous. Legs yellowish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings subtriangular, costa hardly arched, hindmargin obliquely rounded; pale yellow, tinged with orange towards base; an indistinct blackish dash on base of inner margin; a blackish subtriangular patch on costa towards base, its apex reaching two-thirds across wing; a moderately broad straight blackish fascia from middle of costa to inner margin slightly beyond middle, its edges slightly irregular; a black dot on costa beyond it; a blackish hind-marginal band, rather broad on costa, with a blunt projecting tooth above middle, thence attenuated to anal angle, and slenderly produced along inner margin to meet central fascia; in this band is usually enclosed a yellow dot on costa: cilia yellow, black at apex and anal angle, and suffusedly blackish along base. Hindwings fuscous-grey, towards apex dark fuscous; cilia fuscous-grey with a dark fuscous line near base.

A very distinct species, not liable to be confused with any other.

Mr. G. H. Raynor took this species in plenty at Melbourne in gardens, during September and October; Walker's type is from Tasmania.

2. Dipt. tribolana, *n. sp.*

♂ 6½"-7". Head and palpi whitish-ochreous mixed with fuscous. Antennæ whitish-ochreous, annulated with dark fuscous. Thorax dark fuscous, shoulders mixed with whitish-ochreous. Abdomen dark fuscous. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings subtriangular, costa slightly arched, hindmargin obliquely rounded; whitish, irregularly irrorated with fuscous; costa and inner margin coarsely strigulated with dark fuscous, last three costal strigulæ larger and subquadrate; basal patch dark ochreous-fuscous mixed with black, towards base mixed with whitish, its outer edge extending from one-fifth of costa to one-fourth of inner margin, sharply angulated in middle; central fascia rather narrow, oblique, from before middle of costa to inner margin before anal angle, dark ochreous-fuscous mixed with blackish, its posterior margin with an obtuse projecting tooth below middle; beyond central fascia is an obscure greyish-fuscous cloud towards costa, suffusedly connected with it; a dark ochreous-fuscous hindmarginal band, mixed with blackish, broadest in middle, attenuated each way to apex and anal angle: cilia whitish-ochreous, towards base brownish-ochreous mixed with blackish. Hindwings dark fuscous-grey; cilia grey, with a dark fuscous line near base.

Allied to *D. tasmaniana*, which it resembles in form of wing and position of markings; but differing widely in the whitish groundcolour, and dark ochreous-fuscous tint of the markings, and the complete basal patch.

Mr. G. H. Raynor took five specimens at Mount Macedon, Victoria, in December.

3. Dipt. reflwana, *n. sp.*

♀. 9¼". Head, palpi, and thorax dark purplish-fuscous mixed with blackish. Antennæ light purplish-fuscous, annulated

with blackish. Abdomen dark ochreous-grey. Legs whitish-ochreous mixed with grey; anterior and middle tibiæ and tarsi dark fuscous with pale rings. Forewings moderately broad, costa arched towards base, hindmargin obliquely rounded; dark purplish-fuscous, suffused with purplish-grey, and crossed by numerous irregular transverse broken blackish lines; a black tooth of scales on inner margin near base: cilia dark purple-fuscous, with a darker central line. Hindwings grey, spotted with dark fuscous-grey; cilia grey, with a dark fuscous-grey line near base.

Allied to *D. rupicolana*, from which it is separated by the dark purplish-fuscous colour and transverse blackish lines; the male is unknown to me, but might be expected to have more distinct markings, as in *D. rupicolana*.

One female taken by Mr. G. H. Raynor near Melbourne.

#### 4. *Dipt. rupicolana*, *n. sp.*

♂ ♀.  $6\frac{3}{4}$ "-9". Head, palpi, and thorax dark grey mixed with paler. Antennæ whitish-grey, annulated with dark fuscous. Abdomen pale ochreous-grey. Legs whitish-grey, anterior and middle tibiæ and all tarsi dark fuscous with pale rings. Forewings moderately broad, in male dilated posteriorly, costa moderately arched, hindmargin obliquely rounded; light grey, more or less suffused with darker grey, and with numerous scattered black transverse strigulæ; costa and inner margin strigulated with blackish, last five costal strigulæ dilated into small subquadrate spots; extreme base of wing dark fuscous-grey; outer edge of basal patch represented by an irregular interrupted blackish line from one-fifth of costa to one-fifth of inner margin, angulated in middle; central fascia narrow, oblique, dark grey, irregularly margined with blackish, in female often obsolete, running from before middle of costa to beyond middle of inner margin, attenuated at lower extremity; a small cloudy dark grey irregular spot on anal angle, and another on hind-

margin above it, connected with the five subquadrate costal spots by curved rows of blackish scales : cilia grey, with two obscure blackish lines. Hindwings whitish-grey spotted with dark grey ; cilia whitish-grey, with a dark grey line near base.

A dull-looking species, distinguished by its grey colouring, with darker grey markings ; the female is more obscure than the male.

Tolerably common in shady well-sheltered spots in the bush, generally amongst rocks, near Sydney and Parramatta, and also taken at Murrurundi, and at Blackheath on the Blue Mountains ; an early spring insect, occurring in August and September, and on the mountains in October.

5. *Dipt. imbriferana*, *n. sp.*

♂ ♀. 4"-5½". Head and palpi whitish mixed with grey. Antennæ whitish. Thorax fuscous-grey, mixed with whitish on sides. Abdomen grey, sides and anal tuft whitish. Legs whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings rather elongate, costa moderately arched, hindmargin obliquely rounded ; whitish, sometimes faintly clouded with grey ; costa and inner margin obscurely strigulated with fuscous-grey ; basal patch light fuscous-grey, outer edge extending from one-fourth of costa to one-fourth of inner margin, angulated in middle ; central fascia fuscous-grey, margined with dark fuscous, moderately narrow towards costa, rather broader beneath, running from middle of costa to middle of inner margin, angulated in middle ; an obscure fuscous-grey cloudy spot on anal angle ; a dark fuscous-grey spot on costa at three-fourths, connected with middle of hindmargin by an obscure line ; apex sometimes clouded with grey : cilia whitish, with a grey line near base. Hindwings grey, darker posteriorly ; cilia grey, with a darker line near base.

Not very near any of the other species; characterised by the whitish groundcolour, grey markings, and especially the angulated central fascia.

I took five specimens amongst bush near Auckland and Wellington, New Zealand, in January.

#### 21. *AROTROPHORA*, *n. g.*

Thorax smooth. Antennæ in male somewhat thickened, strongly dentate, ciliated with tufts of hairs. Palpi very long, second joint elongate-triangularly scaled, attenuated to apex, terminal joint short, distinct. Forewings elongate, costa in male simple, gently and evenly arched, hindmargin obliquely rounded or nearly straight. Hindwings rather elongate, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 separate.

Larva sixteen-legged, stout, feeding in seed-heads.

Allied to *Tortrix*, but distinguished by the long palpi, and by the antennæ of male, which are very strongly dentate, and furnished with a tuft of cilia on the apex of each tooth.

I have five Australian and one New Zealand species, thus tabulated:

- |  |      |                         |
|--|------|-------------------------|
| A. Head and thorax ochreous-yellow   | ..2. | <i>xythopterana</i> .   |
| B. Head and thorax dark fuscous  | ..   | ..1. <i>incessana</i> . |
| C. Head and thorax whitish, sometimes<br>greyish-tinged.                         |      |                         |
| 1. Forewings without ochreous tinge  | ..5. | <i>confusana</i> .      |
| 2. Forewings with more or less reddish-<br>ochreous suffusion.                   |      |                         |
| <i>a.</i> A well-defined straight dark reddish<br>streak from apex to anal angle | ..3. | <i>arcuatalis</i> ,     |
| <i>b.</i> No such streak..   | ..   | ..4. <i>lividana</i> .  |
| D. Head and thorax rather dark grey  | ..6. | <i>atimana</i> .        |

1. *Arotr. incessana*, *Walk.*(*Teras incessana*, *Walk.*, *Brit. Mus. Cat.* 304).

♂. 6"-8". Head, palpi, antennæ, thorax, and abdomen dark fuscous; palpi long. Legs whitish-ochreous, anterior and middle pair and posterior tarsi suffused with dark fuscous above. Forewings subtriangular, posteriorly dilated, costa moderately arched, apex rather acute, hindmargin sinuate, oblique; reddish-fuscous, indistinctly strigulated with darker, with dark fuscous markings; basal patch obscure, its outer edge nearly straight, not oblique, most distinct on inner margin; central fascia moderately broad, not oblique, from middle of costa to middle of inner margin, its anterior edge straight, well-defined, its posterior edge suffused, connected with an obscure dark cloud on disc beyond middle; a triangular spot on costa at three-fourths; a short erect streak from anal angle, reaching nearly half across wing: cilia pale reddish-fuscous, with a blackish line along base. Hindwings fuscous-grey, indistinctly spotted with darker; cilia pale grey, with a darker line near base.

Distinguished amongst its allies by the reddish-fuscous ground-colour, and especially by the well-defined straight, not oblique, anterior edge of central fascia.

I took one specimen amongst bush near Auckland, New Zealand, in January; and there are two others in the British Museum from the same locality, agreeing with mine in all respects.

2. *Arotr. xythoptera*, *n. sp.*

♂. 8½". Head and thorax ochreous-yellow. Palpi very long, ochreous-yellow above, ochreous-fuscous beneath. Antennæ dark fuscous, basal joint yellow. Abdomen dark grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi suffused above with dark fuscous-grey. Forewings moderately broad, costa rather strongly arched, hindmargin straight, oblique, rounded beneath; pale yellowish-ochreous, apical half (beyond



a line from costa at two-fifths very obliquely outwards to disc beyond middle, sharply angulated and continued obliquely inwards to middle of inner margin) dark reddish-ochreous-fuscous, strewn with numerous small dark leaden-grey spots; a dark fuscous dot at the angulation; a small cloudy dark reddish-ochreous-fuscous spot, mixed with grey, on inner margin before middle; a suffused dark ochreous-grey cloud from apex to inner margin at two-thirds: cilia dark fuscous-grey, with two blackish lines. Hindwings light fuscous-grey spotted with darker; cilia grey, with two dark grey lines.

A distinct and handsome species, characterised by the well-marked contrast between the pale yellowish basal and dark ochreous-brown apical halves of the forewings; allied to *A. arcuatalis*, but broader-winged, costa more arched, and hindmargin rather less oblique.

One male beaten from a *Banksia* near Parramatta, New South Wales, in March; a second from *Banksia spinulosa* at Mittagong.

### 3. *Arotr. arcuatalis*, *Walk.*

(*Scopula arcuatalis*, Walk., Brit. Mus. Cat. (Pyr.) ; *Eromene transcissella*, *ibid.* Suppl. 1763).

♂ ♀.  $7\frac{3}{4}$ "-11". Head and thorax whitish, shoulders whitish-ochreous. Palpi very long, whitish, externally on sides pale ochreous or reddish-ochreous. Antennæ whitish-ochreous, basal joint white. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with grey. Forewings elongate, triangular, costa slightly arched near base, thence nearly straight, hindmargin straight, oblique; whitish, very finely irrorated with grey, with reddish-ochreous markings; a dark reddish-ochreous streak from base beneath costa to one-third thence bent obliquely downwards to centre of disc, and again upwards to beneath costa at two-thirds, sometimes faintly continued to costa before apex; the space between this line and costa is grey, suffused with reddish-ochreous along costa, some-

times wholly reddish-ochreous; a dark reddish-ochreous streak along submedian fold from base to middle; a black dot on disc at two-thirds; a straight dark reddish-ochreous streak, posteriorly darker and sharply defined, from apex to just before anal angle, and a more slender dark reddish-ochreous streak along hindmargin from apex to below middle: cilia whitish, irrorated with grey, with a dark grey line near base. Hindwings whitish-grey; cilia whitish-grey, with a dark grey line near base.

Always recognisable by the distinct dark reddish-ochreous lines on the grey-whitish forewings; variable in size, but always considerably larger and rather broader-winged than the three following species; the palpi are also comparatively longer.

Larva stout, cylindrical; rather dull uniform carmine-pink; head black. Feeds in the flower-cones of *Banksia serrata* (*Proteaceæ*), burrowing through the substance of the cone whilst the seeds are forming. Larvæ found in July and August emerged in October, and others found in January emerged in February.

Rather common at Sydney and Parramatta, and at Blackheath on the Blue Mountains (3,600 feet), from October to December, and in February; the imago is inactive, and when beaten out usually flies straight to the ground.

#### 4. *Arotr. lividana*, *n. sp.*

♂ ♀. 5"-6". Head and thorax whitish tinged with grey. Palpi long, whitish mixed with grey. Antennæ whitish-grey. Abdomen whitish-grey. Legs whitish, anterior and middle tibiae and tarsi banded with dark fuscous-grey. Forewings elongate, narrow, costa slightly arched, hindmargin straight, very oblique; whitish, coarsely irrorated with grey, and more or less strongly suffused with dark grey along margins, more widely along basal two-thirds of costa and along hindmargin; costa and inner margin strigulated with darker; a dark grey spot, often suffused with reddish-ochreous, above submedian fold at one-third; an

ill-defined dark grey cloud, more or less suffused with reddish-ochreous, in middle of disc, confluent with costal suffusion; the reddish-ochreous suffusion is sometimes more or less distinctly produced to base, and extends to costa: cilia whitish-grey, with two dark fuscous-grey lines. Hindwings pale fuscous-grey; cilia whitish-grey, with a fuscous-grey line near base.

This and the two following species are very closely allied together, and differ from the three preceding by their small size, and narrow wings, with more oblique hindmargin. *A. lividana* differs from both *A. confusana* and *A. atimana* by the always perceptible reddish-ochreous discal suffusion, more whitish groundcolour, and grey marginal suffusion.

Six specimens taken at Sydney and Bulli, New South Wales, and near Brisbane, Queensland, in September and October; this and the two following species all seem to frequent species of *Banksia*, and their larvæ probably feed in the same way as *A. arcuatalis*.

#### 5. *Arotr. confusana*, *Walk.*

(*Pædisca confusana*, *Walk.*, *Brit. Mus. Cat.*, 381).

♂. 5"-5½". Head and thorax whitish-grey. Palpi long, whitish-grey mixed with darker. Antennæ whitish-grey. Abdomen whitish-grey, towards base and at apex whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings moderately elongate, costa moderately arched, hindmargin straight, oblique; whitish-grey, irrorated with darker; costa and inner margin obscurely strigulated with dark fuscous-grey; an indistinct somewhat triangular dark fuscous-grey spot on inner margin at one-third; an outwardly oblique dark fuscous-grey streak from costa at one-third, reaching half across wing; a rather broader oblique wedge-shaped dark fuscous-grey spot on middle of costa, meeting a small white spot in middle of disc, which is connected with inner margin beyond middle by an indistinct dark fuscous-grey cloud;

a triangular fuscous-grey spot on costa at three-fourths; an oblique fuscous-grey streak near hindmargin from anal angle, not reaching apex; a dark fuscous-grey line along hindmargin: cilia whitish-grey, with two dark grey lines. Hindwings whitish, faintly greyish-tinged; cilia whitish, with a faint grey line near base.

Rather broader-winged than either *A. lividana* or *A. atimana*; more greyish-tinged than *A. lividana*, without reddish-ochreous suffusion, and with well-defined dark grey transverse markings on costal half of wing, which are not found in *A. lividana*; lighter than *A. atimana*, with less suffused and more numerous markings differing in position.

Eight specimens taken amongst *Banksia* near Sydney, in October, and again in March and April.

#### 6. *Arotr. atimana*, *n. sp.*

♂ ♀.  $4\frac{3}{4}$ "- $5\frac{1}{2}$ ". Head, palpi, and thorax rather dark grey. Antennæ pale grey. Abdomen whitish-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings elongate, narrow, costa gently arched, hindmargin straight, very oblique, anal angle almost obliterated; light grey, very indistinctly strigulated with darker; a suffused oblique dark fuscous-grey streak from costa at one-fourth, and another inwardly oblique from costa in middle, their extremities confluent in middle of disc; three or four suffused subquadrate dark fuscous-grey spots on costa between middle and apex; some indistinct dark grey transverse streaks towards inner margin: cilia whitish-grey, without distinct lines. Hindwings whitish-grey at base, darker grey posteriorly; cilia whitish-grey.

Narrower-winged than either of the other species, and with extremely oblique hindmargin; also rather smaller and darker than either *A. lividana* or *A. confusana*, with two suffused darker streaks forming a triangle with costa before middle.

Four specimens taken near Sydney in August and January.

The next paper will include the species of the families *Grapholithidæ* and *Conchylidæ*, completing the *Tortricina*; as an appendix to which I propose to add a list of Walker's descriptions of the group, referred to their proper species and genera, by way of index.

#### ADDENDA.

Whilst the foregoing descriptions were passing through the press I have obtained an additional new species, and further information respecting three species described above, particulars of which are here subjoined.

##### *Capua parmiferana*, *n. sp.*

♂.  $5\frac{1}{4}$ ". Head pale greyish-ochreous on crown, face dark fuscous. Palpi dark fuscous. Antennæ greyish-ochreous. Thorax light greyish-ochreous. Abdomen light grey. Legs light grey, anterior and middle tibiæ and tarsi dark fuscous with light greyish-ochreous rings. Forewings rather narrow, costa gently arched, bent before middle, hindmargin oblique, slightly sinuate; pale greyish-ochreous, with scattered faint pale grey slightly metallic transverse strigulæ; basal patch indicated by a few dark fuscous scales in disc and towards inner margin about one-third; a purplish-grey rounded-triangular patch extending along costa from two-fifths almost to apex, and reaching half across wing, its anterior margin bordered by a strong blackish-fuscous streak, posterior margin with several irregular blackish-fuscous spots, included portion of costa also spotted with blackish-fuscous; a slender suffused blackish-fuscous streak along upper half of hindmargin; a few blackish-fuscous scales at anal angle: cilia pale greyish-ochreous, indistinctly chequered with purplish-grey, bars becoming confluent on basal half towards upper part of hindmargin. Hindwings rather light grey; cilia light grey, darker near base, extreme base whitish.

A very distinct species, allied to *C. vacuana* and *C. hemicosmana*, but readily known by the dark costal triangular patch.

One male, taken in a gully near Sydney in October.

*Cryptoptila immersana*, Walk.

The discovery of the larva of this insect has revealed the very extraordinary and startling fact that it is the female of *Cacœcia australana*, Lw. It becomes now questionable whether the costal tuft of the hindwings, being confined to the female sex, is a sufficient basis for generic distinction, curious as it is. I think it will perhaps be better to regard the insect for the present as an extreme type of *Cacœcia*, but further knowledge of the group may confirm the original separation of the genus. The specific name *australana*, Lw. will be retained as the oldest.

Larva elongate, cylindrical, when at rest curiously flattened posteriorly, head rather large, anal segment flattened; dark bluish-grey above, yellowish-green on sides; spots raised, rather large, greenish-yellowish; head and second segment whitish-bluish, head with four large black spots on posterior margin, and some black marks round mouth; second segment with an oblique linear black mark on each side; anal segment pale whitish-blue. It feeds in folded and irregularly joined leaves of *Hedera* and *Lonicera* (garden ivy and honeysuckle); also, according to Lewin, on *Embothrium speciosissimum*, so that it is probably polyphagous. These singular larvæ were found abundantly towards the end of August near Parramatta, and imagos appeared about the end of September.

*Tortrix trygodana*.

I have since taken this species in abundance near Sale, Gippsland, flying very readily in somewhat swampy grass plains in September. It is very variable in appearance; the description applies to a well-marked type, but the markings are very commonly

more or less wholly obsolete, represented only by a few coarse scattered dark fuscous scales. The species is however a good and distinct one, separated, as indicated above, from its nearest allies by the darker hindwings.

*Arotrophora xythoptera*na.

Larva moderately stout, cylindrical, rather tapering posteriorly; dull bluish-grey-green, spots darker; head and second segment black. It feeds in a short stiff silken tube amongst leaves of *Lomatia silaifolia* (*Proteacæ*), discolouring them conspicuously. Pupa in a firm silken cocoon covered with refuse, within the end of the tube.

The larvæ were found in July, and I bred two imagos (male and female) at the beginning of August.

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ON A SPECIES OF THE PHASMATIDÆ DESTRUCTIVE TO EUCALYPTI.

BY WILLIAM MACLEAY, F.L.S.

At a meeting of this Society last month, Mr. C. S. Wilkinson, the Government Geologist, exhibited three specimens of a *Phasma* which he had obtained a week or two previously in the vicinity of the Binda Caves, in the county of Westmoreland. He informed the meeting that he had found these insects in amazing numbers in that locality; that the trees for miles around were completely denuded of leaves, and that the dead and dying insects were lying beneath the trees almost in heaps.

The occurrence of a *Phasma* in such numbers is a very remarkable fact, and perfectly new as far as my experience goes. I judge also from observations made at the time of Mr. Wilkinson's announcement by the members present that all were equally struck with the unusual character of the occurrence. The *Phasmidæ* or *Phasmatidæ* as they are now more properly called, are, as we know, all leaf-eaters, and it is rare in any part of the